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ARCHAEOLOGIA:

OR

MISCELLANEOUS TRACTS

RELATING TO

ANTIQUITY.

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RELATING TO

ANTIQUITY,

PUBLISHED BY THE

SOCIETY OF ANTIQUARIES OF LONDON,

VOLUME LIV.

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[a] The Society is indebted to Mr. Murray for the loan of these illustrations.

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[a] The Society is indebted to the Rev. E. S. Dewick, M.A., F.S.A., for these illustrations.

[b] The Society is indebted to Thomas Brooke, Esq., F.S.A., for these illustrations.

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[b] The Society is indebted to Thomas Brooke, Esq., F.S.A., for these illustrations.

[c] The Society is indebted to the Rev. E. S. Dewick, M.A., F.S.A., for these illustrations.

XIII.—*Some Notarial Marks in the "Common Paper" of the Scriveners' Company.*

By Edwin Freshfield, *Esq., LL.D., Treasurer.*

Read June 2, 1892.

The main object of this paper is to exhibit to the Fellows a collection of the Notarial Marks used by the notarial members of the Scriveners' Company of London.

These marks are preserved in a book called the "Common Paper" of the Scriveners' Company, which is in fact the register of members of the Company from the year 1390 to the year 1628.

It is not the intention of this paper to describe in detail the many interesting features of this book; it will be sufficient for the present purpose to give a general description of it.

It is a folio volume of 298 pages, on paper, in a limp brown leather cover.

The book contains some old ordinances applicable to the Companies of the City of London in general, and also some applicable to the Scriveners, or Scriveners of the Court Letter, as they are called, in particular.

The object of the compilers of the Common Paper was to draw up, in the shape of a book, a document containing the whole of the ordinances forming the constitution of the Company, which each member as he was admitted might swear that he would obey, and subscribe his name to his oath. The ordinances, which are partly in Latin, partly in French, and some portion in English, consist, first, of an extract from the General Law of the City, applicable to all fellowships constituted by the Mayor and Aldermen; in the second place of the particular ordinances of the Scriveners' Company which had been submitted to and approved by the City. There are some other particulars relating to the Company, but by far the larger part of the book is taken up by the register, and relative subscriptions made by the members on admission. Each of these subscriptions is in the handwriting of the person admitted to the Company, and the whole together form a complete and valuable register of the members of the Company between these periods. The subscriptions are all in Latin, and each member seems, up to a certain time, to have compiled his own form of subscription. At first they merely state the fact of the oath and subscription, but some of the later subscriptions give particulars of the place of birth and parentage of the subscriber, the name of the person to whom he was apprenticed, with occasionally other information and the date. Each subscription is signed in the margin by the person admitted.

It is fortunate that in some few cases the persons subscribing, being also notaries, have registered their notarial marks, and after a certain date almost every subscriber registers his rubric.

From the very few notarial marks registered it is clear that it was not compulsory to do this, and in many instances a person described as a notary in his subscription registers no mark.

The few that there are, however, form a very interesting collection, extending from the reign of Richard II. to the latter end of Queen Elizabeth's reign. The marks partake more or less of the nature of crosses, and moreover seem in many instances to have been drawn upon some general plan, though with many variations.

The rubrics on the contrary are exceedingly various. I do not think that all the members registering rubrics were notaries, though I think it probable that a large proportion of the Scriveners' Company consisted of notaries.

The notaries occupied a double position. On the one hand, they were public officers having a fixed international position recognised by the Civil Law, and holding an authority from the Emperor and Pope, but not in any way recognised by the Common Law of England. On the other hand, they and the Scriveners discharged all the functions now performed by conveyancing counsel and solicitors in the drawing of deeds and instruments in England.

No one could draw a deed, will, or charter in the City of London who was not himself a freeman and liveryman of a Company.

One of the great objects of the Scriveners' Company was to confine the drawing of these deeds to members of their own Company, in order that they might keep a supervision over them and prevent frauds. This they at last accomplished, but at the commencement of this book it is, I think, clear that scriveners could be members of other Companies. Every scrivener or notary had to sign his name at the foot of every deed prepared by him, as a voucher for his work, and I have no doubt that the rubrics were also used for the purposes of identification.

It seems to me, then, that the larger marks were used by the notaries when discharging their functions in accordance with the requirements of international or civil law, the rubrics when they were doing some act required only for use in England.

For example, a notary drawing up an Act of Protest relating to a foreign bill would use his large mark, and probably also if the protest related to some marine question.

If he were drawing up a charter, conveyance, or such like document, he would use his rubric.

I am now speaking only of notaries in the City of London.

There were other notaries in England attached to the ecclesiastics, equally holding their authority from the Pope and Emperor, but unless these were members of the Scriveners' Company they could discharge no function in the City.

The book appears to have been commenced in the year 1390, the fourteenth year of Richard II. There is a document[a] in that year stating that Martin Seman and John Cossier, masters of the mystery of Scriveners of the Court Hand in the City of London, were presented by the Company as having been by them chosen to be the masters of their mystery for the year then ensuing.

These two persons are the two first who subscribe to the ordinances.

The first subscription is that of John Cossier.[b] His subscription begins "Ego vero Johannes Cossier Civis et Scriptor Litere Curialis Londoñ." I think it is clear, from the manner of commencing this subscription, that he was the first free scrivener who had subscribed to the book, because afterwards each of the scriveners, down to the year 1626, commences his subscription "Et ego."

John Cossier puts his notarial mark in the margin (fig. 1) and signs himself "Notarius Papalis et Imperialis."

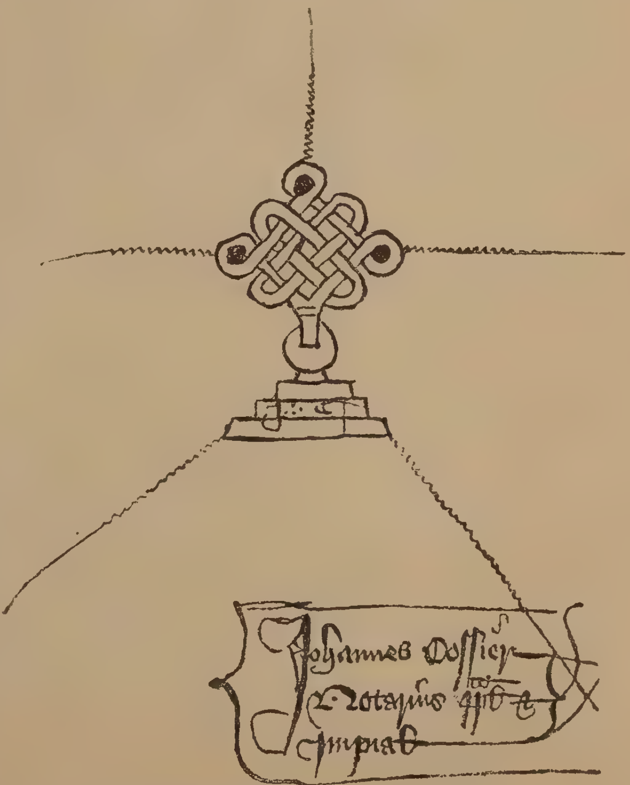

Fig. 1. Notarial Mark of John Cossier, 1390.

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[a] Page 4. This and the subsequent references relate to the MS.

[b] Page 53.

The second is that of Martin Seman, 1390.[a] He also adds his mark in the margin (fig. 2), and describes himself also as a papal and imperial notary. Both these marks are in the nature of a cross. Martin Seman puts the initial of his christian name and the whole of his surname in the foot.

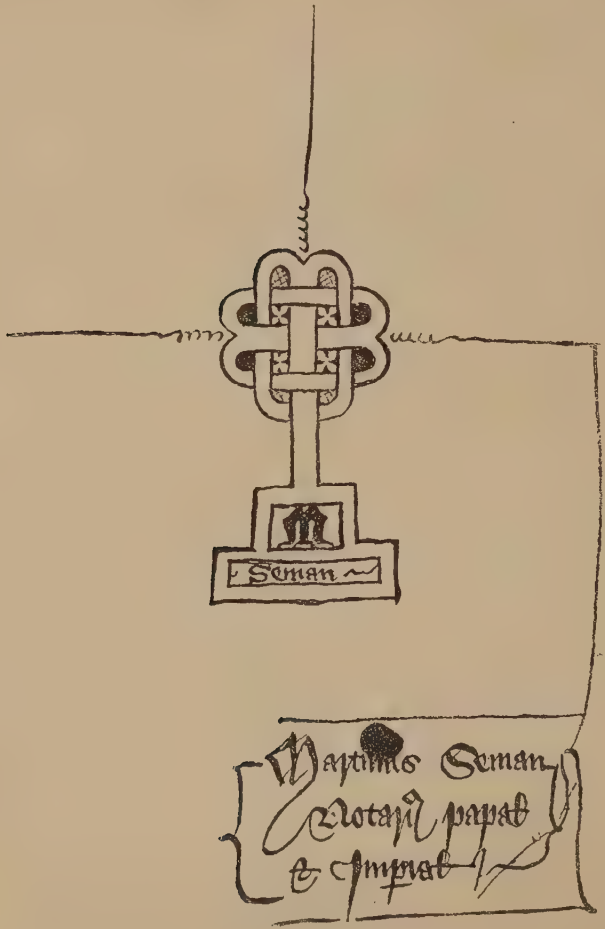

Fig. 2. Notarial Mark of Martin Seman, 1390.

The next mark,[b] that of John Cloune (fig. 3), is a very beautiful one. It is also in the nature of a cross, and contains his initials in the middle. He, too, describes himself as a papal and imperial notary.

Several of the subscriptions at this period are written in ornamental handwriting, and suggest that the scriveners were also illuminators.

The next is that[c] of John Bydeford, a very beautiful cross with his name in the foot (fig. 4). He, too, signs his name and describes himself as a papal and imperial notary.

The next is that of John Chesham.[d] In this mark the cross form is so varied as to be almost lost sight of (fig. 5). John Chesham signs his name in the foot, and describes himself as an imperial notary. If he were also a papal notary this is omitted. This entry is important, as it is the first to give the date. John Chesham wrote

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[a] Page 53.

[b] Page 55.

[c] Page 61.

[d] Page 64.

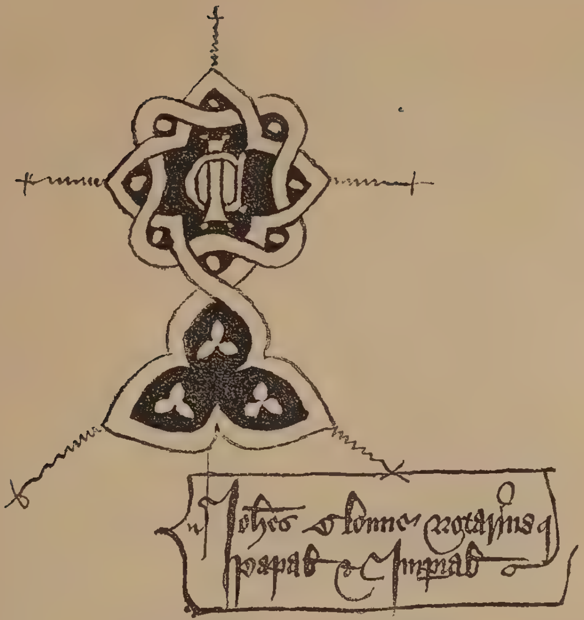


Fig. 3. Notarial Mark of John Cloune, 1390.

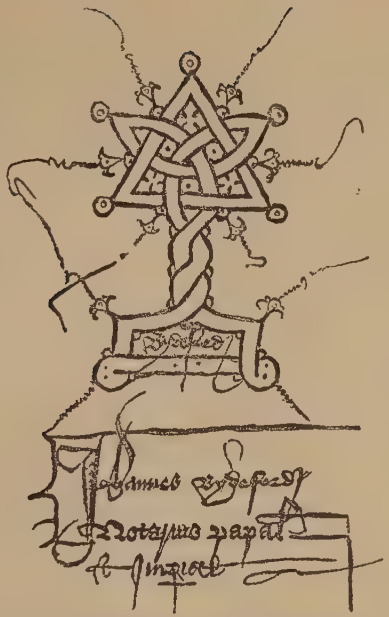
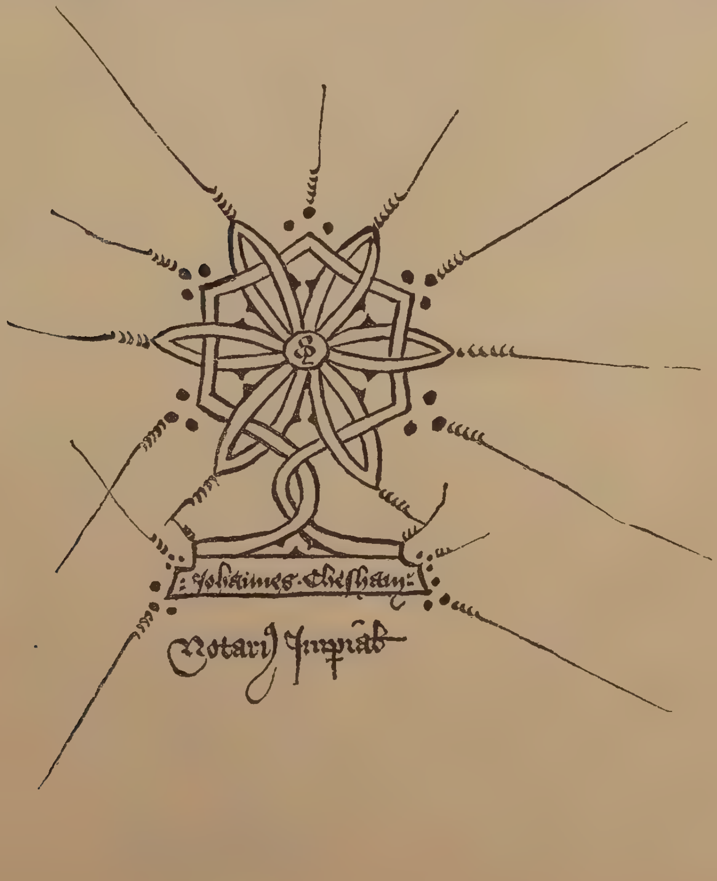


Fig. 4. Notarial Mark of John Bydeford, 1390.

Fig 5.
Notarial
Mark of
John
Chesham,
1417.



his subscription on the fourteenth day of June, in the fifth year of King Henry V. So that the intervening marks are between the year 1390 and 1417.

The next mark[a] is that of Walter Culpet. This is also a beautiful mark (fig. 6), though here also the cross is almost lost. The initial W is in the centre, the name Culpet is written in the foot. The subscription is dated the 20th of July, in the first year of King Henry VI. (1423). W. Culpet signs himself as an imperial notary.

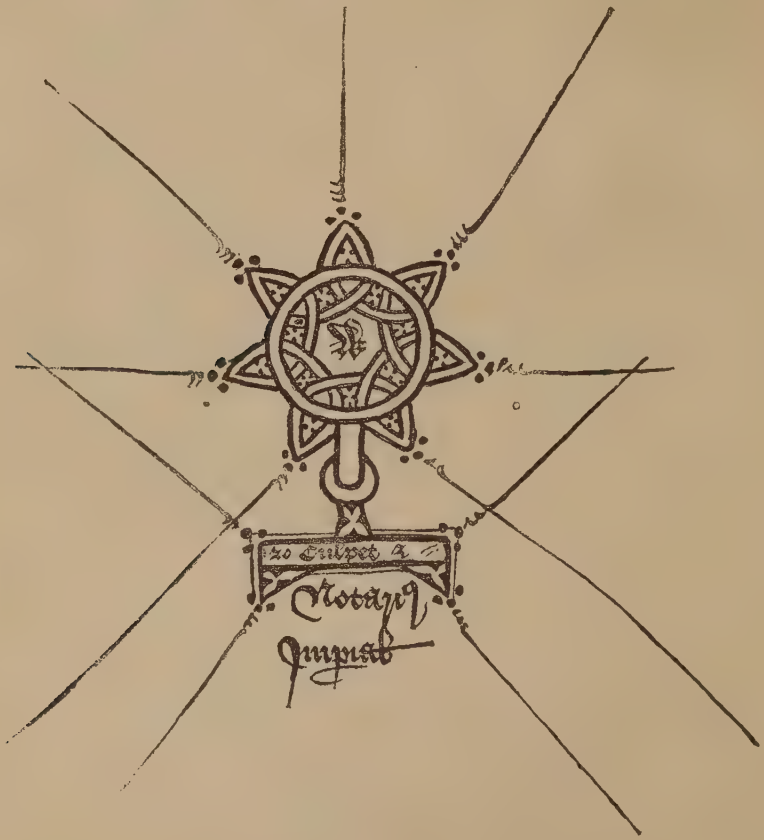


Fig. 6. Notarial Mark of Walter Culpet, 1423.

The next is that of John Daunt.[b] His full name is in the foot of the cross, the centre of which is occupied by the letter D (fig. 7). This subscription is dated on the 15th day of October, 1440. Daunt describes himself as an imperial notary.

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[a] Page 66.

[b] Page 66.

In the earlier part of the book[a] there is a minute containing ordinances made on the 28th April, in the twenty-eighth year of King Henry VI. (1450), John Grove and Robert Dale being wardens. These ordinances prescribed some alteration in the hood of the craft, and that the mass of the Holy Ghost should be said yearly on the Sunday next after Midsummer day at St. Paul's, if it might be had, or else at another place convenient. The mass was to be followed by a dinner, which was to be held on the same day.

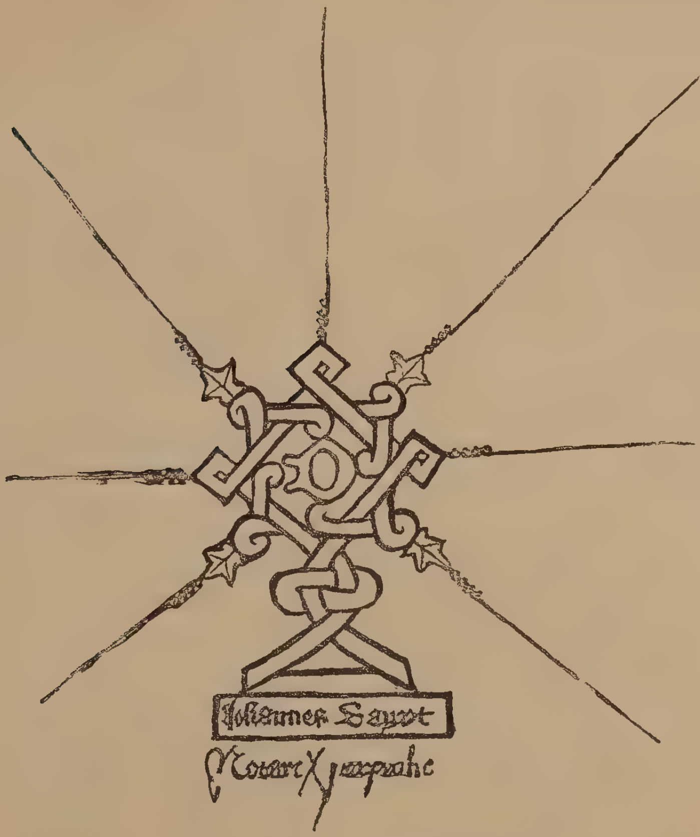

Fig. 7. Notarial Mark of John Daunt, 1440.

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[a] Page 15.

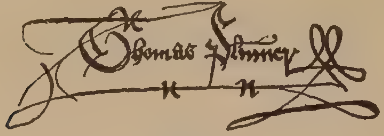

Fig. 8.
Notarial Rubric of Thomas Plummer, 1440.

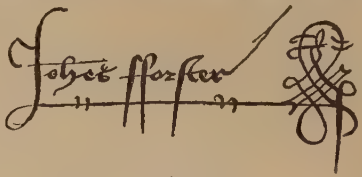

Fig. 10.
Notarial Rubric of John Forster, 1491.

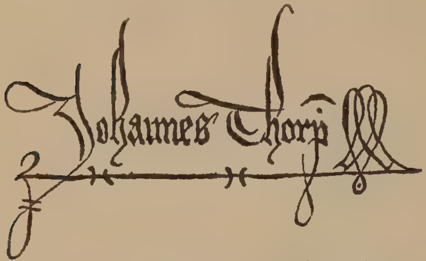

Fig. 9. Notarial Rubric of John Thorp, 1446-7.

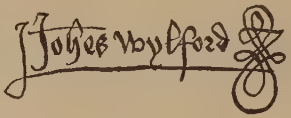

Fig. 11.
Notarial Rubric of John Wylford, 1505.

These ordinances are subscribed by eighteen members, commencing with John Grove and Robert Dale. They all agreed to observe what had been written, but one of them, Thomas Frodsham, took exception to the colour of the hoodings, "I Thomas ffroddesh^{a}m to all that is above writen except the colour of the hodyngꝭ, I consent & aggree."

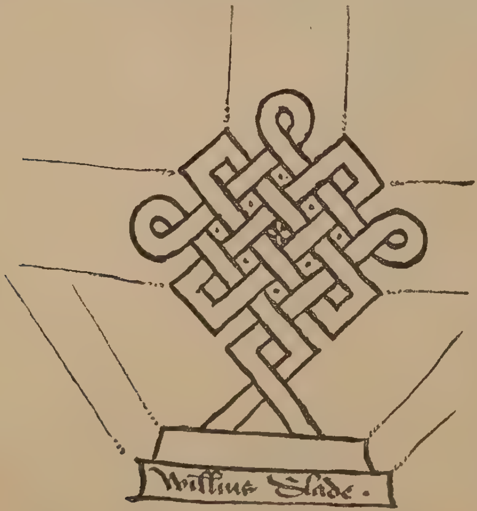
Willius Slade.

Fig. 12. Notarial Mark of William Slade, 1465.

From this one would infer that the fraternity consisted of eighteen members. It is about this time that the Scriveners began to add to their names a mark which I have called a rubric.

It is generally a sort of interlacing figure made with a pen, and this practice continued from this time well into the last century.

The four rubrics here given (figs. 8-11) of Thomas Plummer (1440), John Thorp (1446-7), John Forster (1491), and John Wylford (1505), are excellent typical examples.

Thomas Frodsham, who objected to the colour of the hood, is among the earliest of those who have well-marked rubrics.[a]

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[a] Page 70.

One or two scriveners at this time illuminate their subscriptions very prettily. This especially is seen[a] in the case of two, Richard Humphry and John Thorp, both in the twenty-fifth year of King Henry VI. (1447).

Year by year the rubrics became more general and more important, and hardly one of the subscriptions is without one.

The next notarial mark is that of William Slade.[b] This mark (fig. 12) can hardly be called a cross, but I am sure it is the principle underlying it. On the foot is Slade's name. This subscription is dated 30th July, in the fifth year of King Edward IV. (1465). Besides signing his name on the opposite margin to the mark, William Slade has an elaborate rubric (fig. 13), so that he used both a notarial mark and a rubric. He is not described as a notary, though he was certainly one.

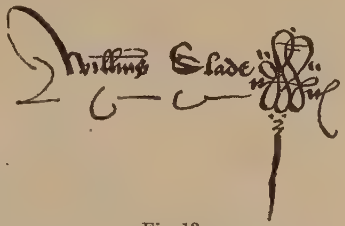

Fig. 13.
Notarial Rubric of William Slade, 1465.

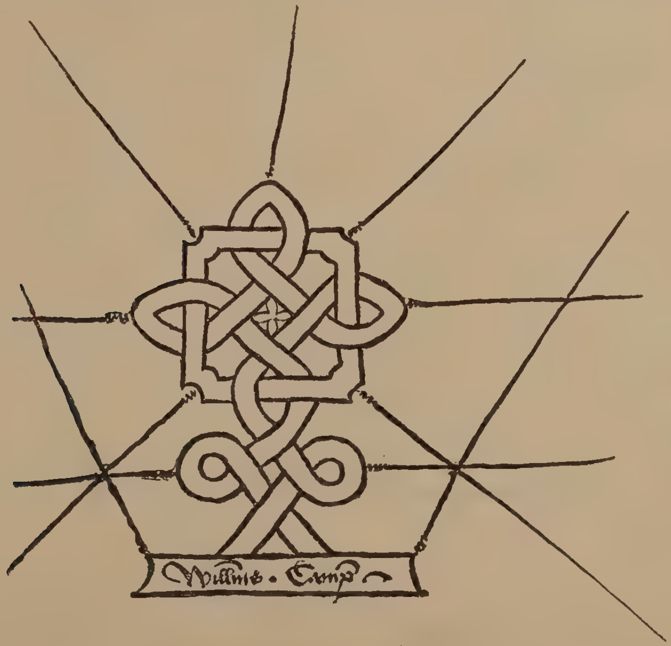

Fig. 14. Notarial Mark of William Camp, 1475.

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[a] Page 72.

[b] Page 77.

If I am right in my view the mark would be for use in all documents relating to the Canon Law or Civil Law, and the rubric for ordinary purposes.

The next mark (fig. 14) is that of William Camp.[a] His admission is dated the 20th of September, in the fifteenth year of King Edward IV. (1475). William Camp signs his name in the foot of his mark, but has no rubric.

The next mark[b] is that of John Manee (fig. 15), who subscribed on the same day as William Camp, and who also subscribed his name in the foot of his mark. He, too, has no rubric. Both these marks are on the principle of a cross with a foot, but the latter is a very poor affair, both in design and execution.

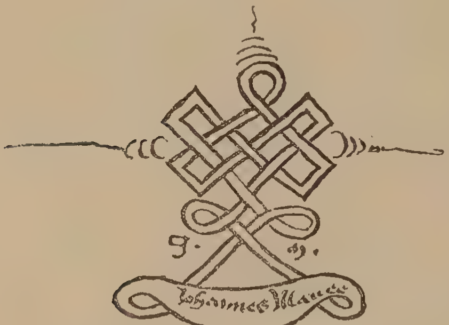

Fig. 15. Notarial Mark of John Manee, 1475.

Hugo Standish, who subscribed his name on the 27th August, 1477, has a very pronounced rubric.[c]

In the year 1490 Thomas Butside, who is described as a citizen and goldsmith of the City of London, and secondary of the Bread Street counter, was admitted a scrivener in Lombard Street, of the City of London, in the tavern called "Le Cardynalls Hatte."[d] He is described as *in sciencia sufficienter eruditus*, but it is impossible, from the wording of his subscription, that he could have written it, though he subscribes his name in the margin in a very indifferent hand. He has no rubric, and his admission appears to have been only complimentary.

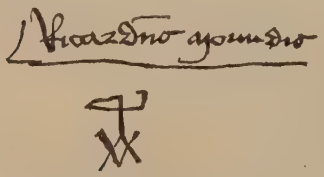

Fig. 16.
Notarial Mark of Richard Moundis, 1518.

Mr. Robert Cressy, in the eleventh year of King Henry VII., describes himself as unworthy (*quamvis indignus*), but his writing is very good.[e]

One admission, that of Richard Moundis,[f] in the ninth year of King Henry VIII., has opposite to it something very like a merchant's or mason's mark (fig. 16).

About five years later several of the subscriptions are without a rubric, and it is remarkable that three of these are those of papal notaries. In the seventeenth year of Henry VIII., Henry Standyssh,[a] also a papal notary, adds a rubric to his name, but has no mark. His is the last entry of a papal notary.

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[a] Page 80.
[b] Page 81.
[c] Page 81.
[d] Page 85.
[e] Page 90.
[f] Page 98.

Thomas Wytton, admitted on the 30th January, 1541-2, and Christopher Dowe, admitted in the following month, have elaborate rubrics (figs. 17 and 18).[b]

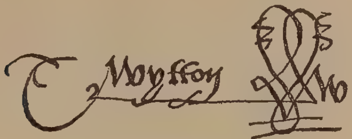

Fig. 17.
Notarial Rubric of Thomas Wytton,
1541-2.

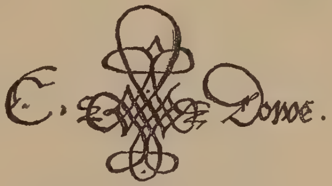

Fig. 18.
Notarial Rubric of Christopher Dowe,
1541-2.

I am interested in Thomas Wytton; he was a tenant of St. Christopher-le-Stocks, and lived in the parish of St. Dunstan-in-the-West, at the corner of Fetter Lane.

The next mark, after a long interval, is that of George Kewall,[c] who was admitted on the 30th June in the year 1559, in which month a large number of scriveners were admitted.

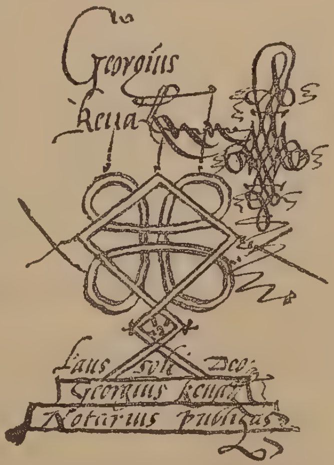

Fig. 19. Notarial Mark and Rubric of George Kewall, 1559.

George Kewall has a poor mark (fig. 19). It is not unlike Manee's. He signs his name in the margin of the submission, and also in the foot of the mark, and describes himself as *Notarius publicus*, and he has a motto, *Laus soli Deo*, the first one registered in the book. In addition to his mark he has a large rubric, which is registered by the side of his mark.

He also gives the names of the scriveners to whom he was apprenticed.

After this date the rubrics become very elaborate. Those of Richard Thomson (fig. 20) and

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[a] Page 100.

[b] Pages 106-7.

[c] Page 117.

Stephen Playne (fig. 21) in 1564,[a] and John Pigbon (fig. 22) and Richard Blake (fig. 23) in 1566,[b] being especially so.

There is nothing to show whether these were notaries, but I believe they were.

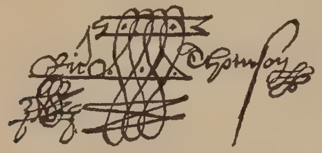

Fig. 20.
Notarial Rubric of Richard Thomson,
1564.

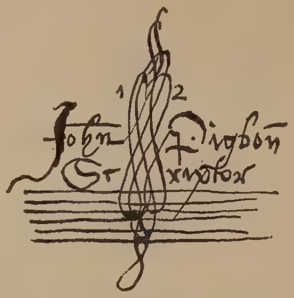

Fig. 22.
Notarial Rubric of John Pigbon,
1566.

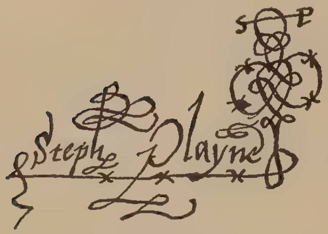

Fig. 21.
Notarial Rubric of Stephen Playne,
1564.

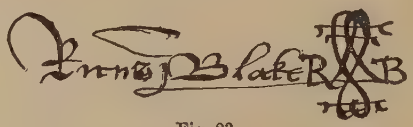

Fig. 23.
Notarial Rubric of Richard Blake, 1566.

The next mark is one in the year 1577, the 5th July.[c] It is in the shape of a cross, and is the mark of George Samwell (fig. 24). He writes his name, printing fashion, in the foot, and describes himself as *Notarius publicus.* He also has a motto, *Gloria deo Soli,* written across the stem of the cross, the word *deo* being between the two intertwining stems of the mark.

It was customary upon the death of a brother to indicate the fact of his death in the book by the word *mortuus.* For some reason George Samwell is described as *defunctus.*

This is the last cruciform mark in the book.

There is a very interesting mark of one Thomas Lucas in the year 1580.[d] It is in the shape of a rubric, but is sufficiently important to be called a mark (fig. 25). Thomas Lucas signs his name on either side of it, and beneath it he has a motto, *Post Tenebras Lux,* obviously a play upon his name. He also signs at the foot of his subscription, again repeating his mark and motto. This place

[a] Page 121.
[b] Page 123.
[c] Page 129.
[d] Page 133.

of signature was an innovation; up to this time the signatures had been in the margin.

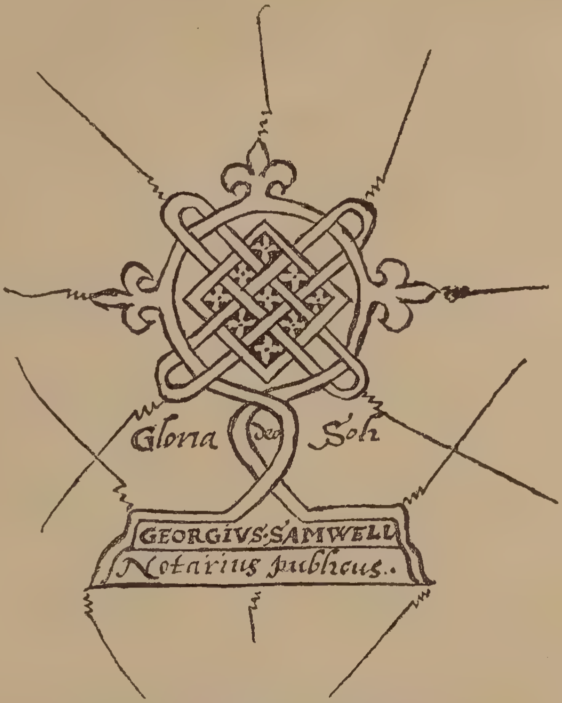

Fig. 24. Notarial Mark of George Samwell, 1577.

The signature and mark at the foot of the subscription correspond with the signature and mark in the margin.

Alexander Wytton, a son of Thomas Wytton, whose name has been before referred to, was admitted to the livery of the company in 1584.[a] He has neither notarial mark nor rubric. He says in his subscription, *Admysus sed non expertus scientia.* No doubt he was admitted by patrimony, and not as an acting scrivener; in fact, he held the same position in the company that I do.

Leonard Browne and Robert Andrews, admitted in the year 1588, have very curious marks (fig. 26), which are unlike any in the book, and must have given them a very great deal of trouble to make.[b] Each consists of an ornament of interlaced work. There are plenty more rubrics, but these are the last marks.

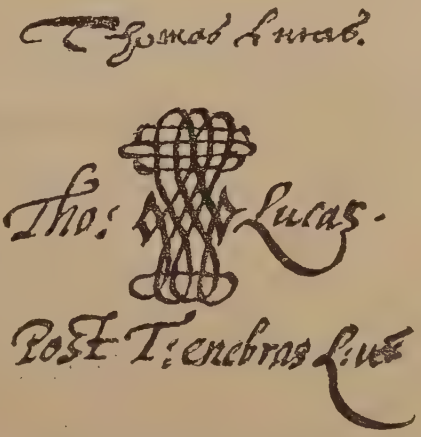
Thomas Lucas.
Thos: Lucas.
Post Tenebras Lux

Fig. 25. Notarial Mark of Thomas Lucas, 1580.

This really concludes my description of these marks, but I must say a word or two illustrating the use of them. It happens that there are two references to notarial marks in *Archaeologia*, to which I shall ask your reference, and it further happens that they illustrate to some extent the different functions of a notary and the manner in which the notaries discharged them.

First, as to a papal and imperial notary. In the thirty-seventh volume of *Archaeo-*

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[a] Page 138.

[b] Page 141.

logia,[a] there is an example of a Spanish notary of this description notarially attesting a document in accordance with the provisions of the Civil Law, and to this attestation he appends his mark.

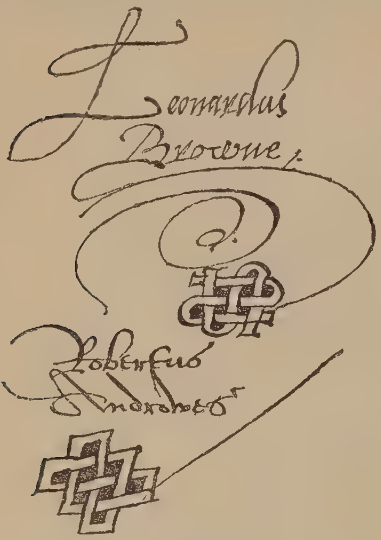

Fig. 26.
Notarial Marks of Leonard Browne and Robert Andrews, 1588.

The mark is figured (fig. 27), and it will be seen that, though very coarse, it belongs to the same family as those in our Common Paper. From its date, 1476, it should have been better. Gaspar Darinyo, to whom it belonged, says *meum solitum artis Notarie apposui signum.*

For a second instance in print I would refer to the admirable representation of a notary's mark in the print of the *Missale ad usum Ecclesie Westmonasteriensis*,[b] published by the Henry Bradshaw Society. The mark is here reproduced by the Society's permission (fig. 28).

John Paynter, who attests the document, which is an ecclesiastical one, affixes his mark, a cross bearing a strong family likeness to our own, with a motto in the foot, *Laus et honor Deo.*

John Paynter calls himself *Clericus Londoniensis Diocesis publicus Auctoritate Apostolica Notarius.* He was not a scrivener, and could not have acted in this way within the City.

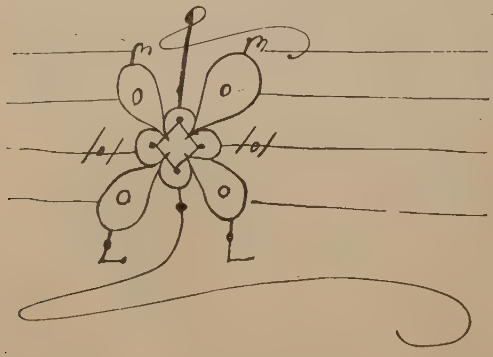

Fig. 27.
Notarial Mark of Gaspar Darinyo, 1476.

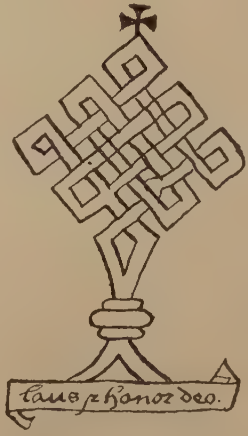
laus et honor deo.

Fig. 28.
Notarial Mark of John Paynter, 1500

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[a] Vol. XXXVII., page 73.

[b] Fasciculus I. p. iv.

So much for the notarial mark.

And now as to the rubric used by a scrivener and notary in the City of London.

In the thirteenth volume of *Archaeologia*, at page 20, there is a document which purports to be a copy of a lease relating to the parish of St. Mary Magdalene, Bread Street, in the City of London. This copy appears to have been notarially attested by Morgan Williams.

Morgan Williams had been admitted to the Scriveners' Company on the last day of March, 1497. It is very much to be regretted that a facsimile of this copy of the lease was not published with the paper, as we might have been able to identify Mr. Morgan Williams's rubric. I print a facsimile of his signature from our book with the rubric (fig. 29).[a]

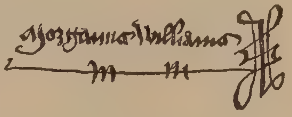

Fig. 29.
Notarial Rubric of Morgan Williams, 1497.

Morgan Williams describes himself, both in the copy of the lease and in his own admission, as a papal notary, but he has no mark registered except his rubric. I have no doubt that in the attestation to the copy of the lease we should have seen his rubric.

In confirmation of this view, I call in aid a copy of a lease in the parish books of St. Christopher-le-Stocks, the lease of Thomas Wytton, the scrivener. This lease was certified by one John Stoberd, admitted a scrivener in the thirty-first year of King Henry VIII. From the facsimile of his admission in our book (fig. 30),[b] and of his certificate at the foot of the lease, from the record book of St. Christopher's, also given in facsimile (fig. 31), you can identify Mr. Stoberd's rubric.

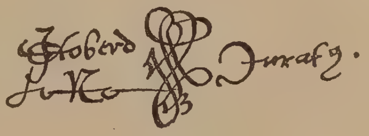

Fig. 30.
Notarial Rubric of John Stoberd, 1539.

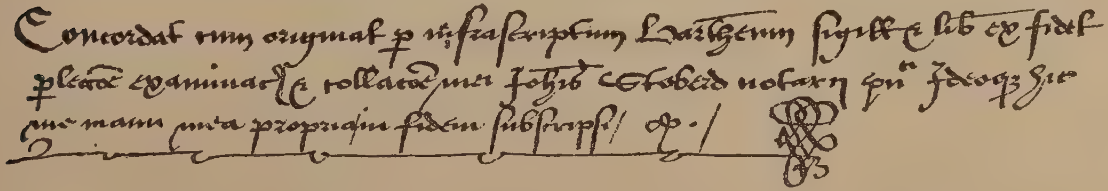

Fig. 31. Certificate with Notarial Rubric of John Stoberd, from the parish book of St. Christopher-le-Stocks.

Mr. Stoberd describes himself as a notary, though he registers no other mark than his rubric. I could multiply these examples, if not indefinitely, to a very considerable extent, but I must abstain from doing this, and also from diverging into some very interesting particulars relating to the execution of Thomas Wytton's lease. It was written out and in part illuminated by a scribe who signs himself in Greek characters φελὸβε. He has for a rubric an elaborate initial letter which is, I think, B. F. (fig. 32). He also signs his name in an illuminated initial. He was neither a notary nor a scrivener, and I think must have been a servant of Mr. Stoberd.

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[a] Page 90.

[b] Page 104.

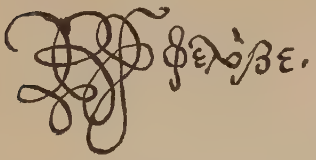

Fig. 32.
Notarial Rubric and Signature written in Greek, from the parish book of St. Christopher-le-Stocks.

I would only add, in conclusion, that upon rare occasions scriveners appear to have altered their rubrics. Human ingenuity in making scrawls with a pen has a limit, and apparently some rubrics were too complicated for general use.

XIV.—*On the Roof of the Church of St. Andrew, Mildenhall, Suffolk.*

By J. G. Waller, *Esq., F.S.A.*

Read February 2, 1893.

The interior of the beautiful church of Mildenhall in Suffolk is remarkable for its spacious and noble proportions. Its roof of oak must take a chief place amongst the many fine examples in the eastern counties. The chancel is of Early English architecture, but the nave and aisles belong to the fifteenth century. It is to the roof of the latter to which I shall direct your attention. It has never been painted, as was so commonly the practice in the county, and therefore has that grey colour which ensues when no extraneous matter has been applied. The roof of the nave is divided by seven principal beams, supported by spandrels with tracery, with additions sustaining the rafters. These beams are highly ornamented with a crested ridge and battlements, characteristic of the Perpendicular period of the fifteenth century. Besides this, they are decorated on the face by a series of small demi-figures of angels arising from a nebuly base, and holding scrolls, which sometimes pass from the left shoulder and sometimes from the right, all made from the same pattern. These are carved separately and fixed upon the other work, and from their colour may possibly be made of sycamore, a tree which grows luxuriantly in the vicinity and in other parts of the county. They are also repeated upon the upper part of the wall-plate throughout, and are intended to represent the passage from *Te Deum*, "To Thee all angels cry aloud," in accord with the general subject to which I believe the whole belongs.

Besides the principal support, there are intermediate spandrels raised upon a beam projected horizontally from the wall-plate, under which, and forming part of it, are figures of other angels, nearly of life-size, arising from a nebuly base, with the wings widely expanded, and, as it were, hovering over the congregation beneath. The idea is very pretty and the execution effective. I shall presently refer to other examples in illustration.

Now, directing our attention to the east end, there will be seen on either side a figure with hands conjoined in prayer, abutting directly on the wall. The same arrangement is also at the west end. Proceeding westwards we come to the first pair of angels just referred to. They once held emblems, which are, however, broken away. This has a significance, as I believe a very important and essential figure has been removed from near here, possibly at the same time, by the iconoclasts of the sixteenth century. The next pair of angels hold lutes. Now the lute was a very favourite instrument, which developed in the fifteenth century, and abounds in the compositions of Italian, Flemish, and other schools. In the sixteenth century, to play upon it was considered to be one of the accomplishments of a gentleman, and in southern Europe it is still in use. But I was not prepared to find it in favour with the theology of the time. There is a passage, however, in a sermon of that curious collection, *Dormi securè*, which directly specialises it thus:

"Et cantate domino, quia benefecit vobis prebendas largas concedendo. Secundo, do tibi instrumentum musicale *lutinam*. Nota. Lutina est instrumentum magnum respectu aliorum instrumentorum, sic tua vita debet esse in exemplum omnium statuum: et in secularibus hominibus bonam et sanctam vitam causare." [a]

In the same sermon reference is also made to the instruments of the Passion, viz. the crown of thorns, the nails, the lance, which we shall find here. The next pair of angels, however, hold books which, one might readily suppose, would signify those of the old and new law, even if it were not justified by a sermon in the same collection. Of the two angels in succession, that on the north holds the cross and crown of thorns, the opposite one on the south the hammer and nails. The last two hold shields. That on the north bears a cross with scourges, &c.; the other is mutilated, but, judging by precedents, it should have been the well-known device of the Trinity, the two being very commonly seen at the doors of churches in the eastern counties. These devices, which appear on the roof of the monks' choir at St. Alban's abbey church, are there named respectively the "Shield of Salvation," and the "Shield of Faith." The corbels, on which rest the spandrels by the chancel wall, have the shields of St. Edmund and St. Edward the Confessor, saints dear to the English people, and the first, the special saint of East Anglia.

Now, considering the character and arrangement of the details just given, and the close analogy they bear to that which is familiar to us in mediæval ecclesiastical art from early times, one cannot do otherwise than assign the entire subject to "Christ coming in his glory," founded upon the text of S. Matthew xxv. 31. It was the chief subject, in various phases of development, over altars, in domes, and other conspicuous places in our cathedral and parish churches. But the figure of Christ, termed the "Majesty," from the Vulgate translation of δοξη, is here wanting, though all the accessories are present as in the text, "and all the holy angels with him" are duly supplied, and, as we shall presently see, the associated Apostles, as in Durandus.[a] One must consider, therefore, that it was destroyed, together with the rood-loft, in the sixteenth century. When this took place, the emblems held by the first two pair of angels, which precedents would teach us were the lance and the sponge, were doubtless also removed. It is not probable that the principal figure which governed the whole subject was omitted.

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[a] *Sermones Dormi securè. De novo anno.* Numerous editions of this work were printed at Lyons and elsewhere at the end of the fifteenth and early part of the sixteenth century.

It will be well, however, if I now appeal to another example at the church of March, in the adjoining county of Cambridge, where is a roof of great beauty of design, similar in date and without mutilation. Here the termination of the hammer-beams throughout have demi-figures of angels, with wings displayed and holding divers emblems. The lower spandrels are supported by imposts, consisting of a series of figures beneath canopies, apostles, saints, angels; and in the centre, on one side the figure of the Majesty, and on the opposite that of the Blessed Virgin Mary, with the usual accompaniments of instruments of music and the appropriate emblems. This roof, though very beautiful in design, is inferior in execution to that of Mildenhall.

I will now describe the roof of the north aisle, in which there is abundance of detail to interest us. It consists of seven principals with spandrels sustaining them, resting upon brackets composed of a series of figures of various characters, over each of which hovers from a nebuly base the demi-figure of an angel, whose wings embrace the figure, and thus constitute the guardian angel. All are seriously mutilated, and the features and emblems destroyed, a fate which has befallen them throughout the aisles. These figures are not, however, intended to be saints, so one must conclude that they represent benefactors, or the several orders of society, but most likely the former.

Beginning at the west end, is a male figure in a tunic with belt and pendant. The second is a female figure veiled, richly draped. It is not certain if this be intended for a recluse or a widowed lady; I am inclined to consider it the latter. The third is also a female figure, with the head bare, richly draped in a dress with very ample folds. The fourth is a male figure in loose over-dress and loose sleeves, bearing a wallet on the left side slung by a strap across the right shoulder. The fifth is a bearded figure in tunic and mantle. The sixth, a female figure in tunic and mantle, finely draped. And the seventh, a priest in alb, crossed stole, and cope. If we consider these figures to represent the different orders of the time, yet possibly benefactors, which this last of the priest reasonably suggests, then the second, the veiled lady, might be an abbess, the man with the wallet an almoner, and others civil personages. The corresponding supports of the south wall have figures of angels only.

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[a] *Rationale*, lib. i. 7.

Before proceeding further, it is necessary to point out, that there are six accessory intermediate supports which arise from figures, almost of life size, projecting horizontally from a nebuly base on the wall plate. All the features and hands with emblems, which doubtless distinguished them, being gone, one can only speak of them as being finely designed, and the drapery admirably executed; in fact, no finer can be found of the time, prominent in the history of mediæval art, the first half of the fifteenth century. As a similar number of figures exist in the south aisle, no doubt we thus have the twelve apostles, which I have already shown belong to the general subject to which I have referred.

I now take the series of figures carved upon the horizontal beams superimposed above the spandrels previously described. These I consider as symbols of evil. Beginning at the west end, the first which commands our attention is the figure of a woman having the horned head-dress, the face grotesquely treated. I assign this to Pride, as the mother of the deadly sins in mediæval theology, or possibly *Luxuria*, both being the object of special satire, and in Spenser's *Faery Queen* we see a picture of this vice which is built up on mediæval traditions.

The subject of the west face of the spandrel immediately under this may be called a demoniacal serenade for the lady's behoof. It represents one demon playing upon an organ whilst another blows the bellows, which are similar to the common domestic utensil. On the opposite side is St. George encountering the dragon, here a wyvern, about which I shall presently have something to say.

The next figure may be intended for a Saracen as an enemy of the Christian faith. It is bearded and crowned, dressed in a short tunic, with boots open loosely at the ankles, and holds a bare scimitar by the right hand. It is not improbable, however, that a Dane is here represented, for the traditions of the ravages of that people are even now quite not dead in Suffolk, in connection with St. Edmund, and we are here not many miles from Bury, the locality of the great monastery dedicated in his honour. Besides, I shall have to note an illustration of his legendary history, and it is to be remarked, that in the poetical version by Lydgate,[a] the miniatures give the Danes a scimitar, and put them in armour never worn at any time on this earth. The mediæval artist sometimes indulged his imagination even in costume.

The beam in succession has a lion crouching, a full face of one being added behind it. I call this *leo rugiens*, but I must note that in mediæval art the lion is also a symbol of an overcomer of evil, and one of rank and honour. It has this meaning when at the feet of our effigies; and in a subject once common, "The grades of Human Life," as developed in the fifteenth and sixteenth centuries, which is still got up in parts of France, it is placed beneath the king or judge. In an Italian example in my possession there is added a couplet which says "that the man of forty is king among mortals as the lion is among all animals."[b]

Following in order now comes the wyvern, as it is called in heraldry, but I doubt if of earlier date than the fourteenth century. But what is the wyvern? Francis Thynne in his animadversions on Speght's edition of *Chaucer*, 1598, says "a Wyuer is a kynde of serpent of good Bulke, not vnlike vnto a dragon, of whose kinde he is, a thinge well knowen vnto the Heroldes."[c] Although the wyvern is a distinct personality and creation of mediæval art, yet the dragon in early forms could scarcely be described differently, as in the example now preserved in St. Nicholas' church, Ipswich, a relic from a previous church of St. Michael, and probably not later than the ninth century. In fact the wyvern forms part of the history of the dragon, which goes through all sorts of phases. It is sometimes a mere serpent, sometimes even bear-like, sometimes half human, half animal or demoniac, until in the sixteenth century we see it in St. George's encounter grimly developed in throat and teeth and a tail with many a fold, and it is to heralds we are indebted for a distinction between the two. As in this church of Mildenhall the wyvern in its various phases is more developed than I ever saw anywhere else, I may, perhaps, be allowed to dwell somewhat at length on the history of this singular combination. Its name evidently descends from the same source as viper, indeed it is only a variation of the word.

In the example before us, we have a long reptilian form, with bat-like wings, four feet, in this deviating from an established type of which there are several instances all around, and a knotted tail with a terminal grotesque head. Its own head has a blunted snout and long ears (fig. 1). One might easily imagine that the head at the end of the tail was a freak of the artist of this example, but it shows how dangerous it is in ecclesiastical art to assume an individual idea, as in that at the feet of abbot Benedict in Peterborough cathedral church, 1193, we have the same peculiarity, notwithstanding the interval of over two centuries between them. It also occasionally appears on the tails of demons.

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[a] Harl. MS. 2278, Brit. Mus.

[b] This engraving has the name of the artist, "Per me Cristofero Bertello," and the couplet runs thus:

L'huom' di quaranta è Re fra li mortali
Com 'è il leon fra tutti li animali.

[c] Ed. Furnivall, Chaucer Society, Second Series, xiii. 41.

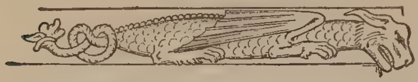
Fig. 1. Figure of a Wyvern.

Without taking at present the orderly arrangement of the carvings, it will be more convenient to complete the history of the wyvern. At the base of the central spandrel on the south side is the conflict of this creature with the lion, where again it has the abnormal four legs instead of two, and the whole composition is inferior. This symbolic subject (fig. 2), in which the lion is overcoming the spirit of evil, possibly as the lion of the tribe of Judah, just as St. George on the one hand and St. Michael on the other, I do not think appears before the twelfth century, and the earliest example I have met with is in the cathedral church of Modena. This, constructed in the beginning of that era, belongs to the remarkable style of Lombard architecture of which northern Italy shows so many examples, and, if in their plan the Teutonic intellect prevails, I think in sculpture we get that of Italy. The group of which I now show a sketch forms the basis of one of the columns which support the presbytery, and is remarkable for the energy of its execution (fig. 3). The lion has its enemy prostrate in its power, but yet the wyvern attacks it, a phase which runs through the whole of the middle ages. Let us now pass through this period to a fine composition of the sixteenth century in the cathedral church of Würzburg, so interesting for the series of monuments to its prince bishops, lordly prelates, who grasp the sword as if more in character with their state than the crosier. It is at the feet of a standing figure of bishop Laurence a Bibra, who died 1519, and the fabulous

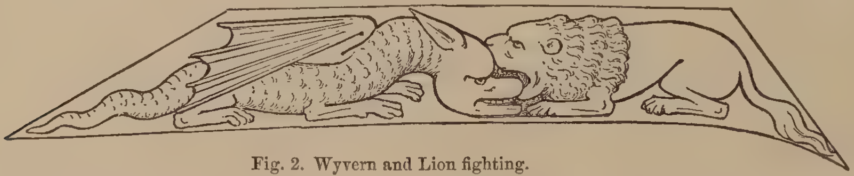
Fig. 2. Wyvern and Lion fighting.

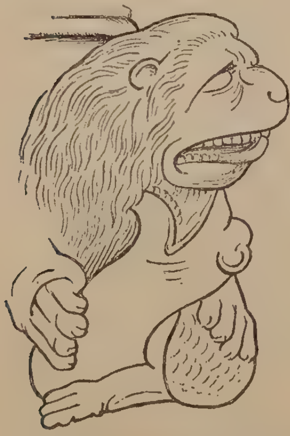
Fig. 3. Lion and Dragon at Modena.

wyvern with lizard-like head, long neck, prominent vertebræ of spine, and reptilian wing, has so natural an aspect that one would hardly be surprised if it turned up as a fossil at Solenhofen (fig. 4). An excellently designed example of the subject is in the Lady Chapel of Ely cathedral church. It appears also on the print of a mazer at Harbledown.[a]

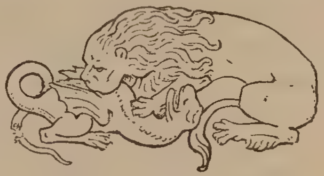

Fig. 4. Lion and Wyvern at Würzburg.

The wyvern again appears on the spandrels of the south side, biting the tail of another analogous reptile, but wingless, which lolls out a long tongue; and in another place this reptile returns the compliment to the wyvern. Its meaning, if it have any, is obscure, for both figures are symbols of evil (fig. 5). I have already mentioned the wyvern taking the place of the dragon with St. George, and it also does the same with St. Michael at the east end of this aisle, if indeed a difference between the two exists out of heraldry.

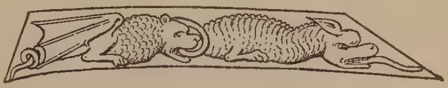

Fig. 5. Wyvern and Reptile.

In the south aisle it again appears on the spandrels; in one instance a female demi-figure is grasping one on each side of her by the throat, as if strangling them; in another, it is seizing upon a bearded figure of a man, whose right hand is in its throat, his left raised to his mouth, and left leg raised and bent across the other. His attire seems to be a closely-fitting, longitudinally padded garment, as in the military gambeson. Some meaning, doubtless, was attached to these subjects when executed; perhaps of a covert nature, as in other instances to be described; but it is hopeless to attempt to unravel them, and guesses generally have a tendency to increase our darkness.

To return to the north aisle and to the order of the spandrels. The beam in succession has carved upon it a figure in short tunic, with cape and hood, both hands to his head, and on one side a dagger or anelace at his girdle, and on the other a pouch pendant. It is difficult to assign this figure, but its costume is that of a burgher. The position is abject, as in the female figure described, and as all these beams have symbols of something evil, may we suppose that a naughty burgher of Bury St. Edmunds is here *in terrorem*, one always in conflict with the lord abbot, for it must be remembered that Mildenhall belonged to the abbey, and monks were never unwilling to indulge in such satire. The last beam has a repetition of the lion.

The spandrels of the north side are all filled up with subjects in low relief; on the west face these are scriptural, on the east legendary or heraldic, with one exception. Beginning from the east end is, first, St. Michael encountering the dragon (wyvern), then the Annunciation, the angel appearing to Abraham to restrain him from the sacrifice of Isaac, the announcement of the angel to the shepherds, the baptism of Christ, and a demon playing on the organ, as already described. None of these call for any special mention. They are inferior both in composition and execution, and there was some difficulty in accommodating the figures to the shape of the panel.

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[a] *Archaeologia*, l. 138.

Taking now the eastern face, beginning from the west end with that against the wall, is a subject that is very obscure. It consists of a number of seated figures and one kneeling, seemingly women veiled, but the execution is not good and it is in a dark position. I can make nothing out of it. The next subject is St. George and Dragon. Then comes a swan, with a coronetted collar about the neck, and chain attached, facing a dog (fig. 6). This, being perhaps heraldic, I shall deal with it and others similar with the numerous emblems of the kind. The next is an antelope, with crown and attached chain round the neck, in front of an eagle or falcon (fig. 7). Then a figure of a man winding a horn, holding a bow, booted to the knees, and with cap with displayed hood; a hart, with head averted and recumbent, is by his side; then a hare and hounds. This is probably intended for a part of the story of St. Eustace. The last is a griffin and what may be a ram.

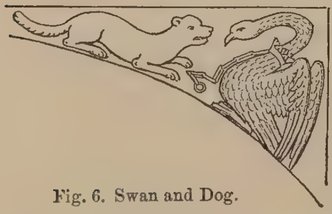
Fig. 6. Swan and Dog.

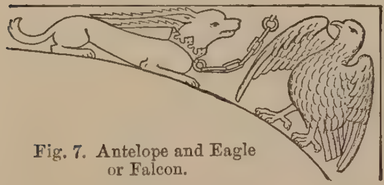
Fig. 7. Antelope and Eagle or Falcon.

On the spandrels of the south wall some subjects have yet to be described. The first I shall notice is the most remarkable of the series. It represents an animal, seemingly a dog, having the head of a cock in its mouth, the body being thrown across its back. In front is a dog; and behind its tail is grasped by a grotesque or demoniac figure (fig. 8). Some satire must be here involved, but it is difficult even to suggest what, and therefore I only describe what my sketch represents. Two others are remarkable; one is a boar meeting a talbot dog. The other has the boar crouched down in sleep or death, and a talbot dog behind, as if barking (fig. 9). We know that the talbot dog was a frequently-used symbol of the great hero of the time, John

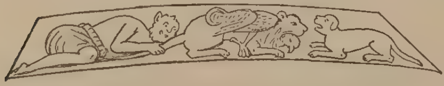
Fig. 8. Demon, Dog and Cock, and Dog.

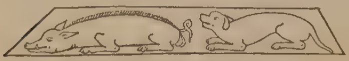
Fig. 9. Boar and Dog.

Talbot, earl of Shrewsbury, and is conspicuously shown in the Shrewsbury book.[a] We know also that the boar was a symbol of the duke of Gloucester, afterwards Richard III., and the work we are considering was executed in the reign of Henry VI., facts to be borne in mind in any attempt to read the meaning of the matter before us. Another singular combination consists of two figures, half animal half human. One is a male figure with closely-fitting jerkin to the waist, ending in the hinder parts of a lion, the head with a hood of the time. The other is a female head veiled, with drapery drawn across the waist, ending probably in the haunch of a lioness. The heads of the figures meet in the middle. To attempt any explanation would be hopeless. There is also one of a hound seizing by the tail a hart, whose head turns backwards as it is crouched prostrate. The last to be described, however, will have its true explanation, and it suggests, that if one group has a meaning so have the rest, if we had the clue. It represents a crowned head, between a wolf, which is watching it, and a lion heraldically passant guardant and crowned. This obviously refers to the legend of St. Edmund. Lydgate, the monk of Bury St. Edmund's, wrote a poetical version of the life and martyrdom of the saint, now preserved amongst the Harleian MSS. One of the numerous illuminations shows a white wolf sitting by the head, which is crowned. The following lines accompany it. After stating that the head of the martyr was hidden away apart from the body, it says:

> But blissid Jhū which every thyng may se
> His holy martir listnat so forsake
> Ut of his grace and merciful pite
> Knowyng that he deied for his sake
> Suffred a wolf his holy hed to take
> And to conserve it ageyn assautis alle
> That foul nor beeste sholde upon it falle.[b]

We must look upon the introduction of the lion as an armorial device, a symbol only of royalty.

Having now gone through all the main features, together with the various subjects constituting the details, I shall conclude with an account of the numerous armorial badges dispersed on the wall-plates, and on other portions of the aisles. As the part of the church under consideration was erected in the first half of the fifteenth century, during the reigns of sovereigns of the House of Lancaster, one might easily suppose that heraldry would have special reference to that branch of the descendants of Edward III., and of partisans who adhered to it; and so we mostly find it, though as yet, perhaps, the struggle between the two houses had not begun, and only displayed a dark horizon, herald of the coming storm. Of these devices the most beautiful is undoubtedly that of the *white swan*, in heraldic language, *a swan argent, collared and chained or*: the collar a coronet. This appears well developed in one of the spandrels of the north aisle (see fig. 6), with a dog crouched in front menacingly; but, if it has any significance, it is veiled from us.[a] This badge is derived from the family of De Bohun; Henry Bolingbroke having married for his first wife Mary de Bohun, youngest daughter and co-heir of Humphrey earl of Hereford, Essex, and Northampton. But its origin has been traced to Adam Fitz-Swanne, whose father had large estates in the north of England in the time of William the Conqueror. Thence it passed through the Mandevilles, earls of Essex, by the marriage of Maud Fitzpiers, heiress of Beatrice, sister of Geoffrey de Mandeville, with Humphrey de Bohun before named. Thomas of Woodstock, youngest son of Edward III., was, in right of his wife, Eleanor de Bohun, elder sister of Mary, earl of Essex and Northampton; and on the beautiful brass to her memory in Westminster abbey we see the badge of the swan. The Nevils, Beauchamps, and other noble families were also entitled to use this badge.

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[a] Royal MS. 15 E. vi. British Museum.

[b] Harl. MS. 2278, f. 64.

Associated with this is another of significance, also found here prominently in the same aisle. This is the antelope, which is seen on the chantry chapel of Henry V. in Westminster abbey. Mr. Willement has given good reasons for showing that it also came from the De Bohuns. So, therefore, when Henry of Bolingbroke appeared in the lists at Coventry against the duke of Norfolk, he had his horse caparisoned in blue and green velvet, embroidered sumptuously with swans and antelopes of goldsmiths' work. The example in the aisle shows the antelope couchant, collared in the coronetted form and chained, in front of an eagle displayed, on which presently (see fig. 7). On a portion of the wall-plate of the south aisle the swan and antelope alternate with each other.

As regards the eagle in English heraldry, it has always been attributed to a German descent; and was without doubt so associated from the time of Henry II., whose mother Maud was empress of Germany, and it thus became one of the cognizances of the royal house of England. For our purpose it is enough to state that John of Gaunt used it, as it appeared on "his velvet beds of silk, with blue eagles displayed," which he bequeathed to his daughter the duchess of Exeter. On the tomb of Henry IV. is an eagle volant, and it is appended to his collar of SS. Thus it descended to his son and grandson.

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[a] It is to be remarked, however, that the recurrence of the dog, the talbot, in so many examples must have had some meaning.

The griffin appears in one of the spandrels, and also upon the wall-plate. This cognizance, though used by more than one family, may probably be here assigned to the Beauchamps, as it is shown at the feet of Isabella Maudit, who married William de Beauchamp, whose son became first earl of Warwick of the name, in the series of figures by John Rouse, in the well-known Warwick Roll.

Many of the devices of the wall-plate in this aisle are lost. There is a pig or boar with collar and bell attached to it. We usually look upon this as the emblem of St. Anthony, but whether ever adopted as an armorial badge, which one would here assume it to be, is at present unknown to me. A stag lodged with long horns extending behind may be the hart, a Plantagenet badge, which was in favour with Richard II., and appears frequently on his monument in Westminster abbey. But as it is not one which plays a part in the partisan struggle, it might easily, like others, be assumed by both houses. A horse or colt couchant may be the emblem of the Colt family, of the adjoining county of Essex; if, indeed, they had sufficient importance by possession of property or otherwise. A lion guardant needs no explanation, but an animal collared and chained is another of those not easy to determine.

A collared greyhound cannot be specially assigned, but the boar proper must be given to the duke of Gloucester, afterwards Richard III., and, with the recurrence of the hart, may be an evidence, that as yet no roses had been plucked in the Temple Gardens, as symbols of the coming strife.

The wyvern, which appears in one of the spandrels of the south aisle and several times on the wall-plate, was the cognizance of Thomas, lord Bardolf, who joining with the Percys was with them defeated by the sheriff of Yorkshire, February 19th, 1407, when the earl of Northumberland was slain, and lord Bardolf taken prisoner, wounded unto death. His two daughters became his coheirs, and the younger, Joan, was married to Sir William Phelip, of Dennington, in the county of Suffolk, where is a fine monument to their memory, having the wyvern in its best development at the lady's feet. Sir William was a stout adherent to the side of Lancaster, served in the battle of Agincourt, was made knight of the Garter, and among many other appointments was treasurer of the household, and thus had the chief conduct of the funeral of Henry V. In the succeeding reign he performed also many important services at home and abroad. At a council held at the Hospital of St. John of Jerusalem he was styled Sir

William Phelip, knight, chamberlain, and was then raised to the title of Baron, as William Phelip, lord Bardolph. He died in 1441, probably whilst the work we are now considering was being executed. The other coheir, Anne, married Sir Reginald Cobham, of Sterborough, and in Lingfield church, Surrey, is a noble monument in alabaster to them, doubtless by the same hand as that at Dennington, and in which the same cognizance appears.

Part of the wall-plate of this aisle has the swan and the bear alternately. The latter being the well-known cognizance of the Beauchamps, earls of Warwick, borne also by the Nevils and others who held the title.

I have thus brought my task to a conclusion by describing all those details of importance. Previously to the destruction of the rood-loft there was doubtless also a fine screen connected with it, as was common in the eastern counties, and particularly in work of the fifteenth century. But of this there is no trace, though some worked-up fragment may have belonged to it. I have refrained from the attempt to explain many details, which are so obscure as to elude research.

XV.—*On the Camp at Ardoch, in Perthshire.* *By* T. M'Kenny Hughes, *Esq., M.A., F.R.S., F.S.A.*

Read March 16th, 1893.

We may accept as a fact that the Romans did advance in force, at any rate as far as the Graupian or Grampian Hills, and we may feel sure that they constructed camps, and strong camps too, along their line of march.

It is, however, very doubtful whether we can as yet identify with certainty the stations mentioned in the accounts of the campaign. Before we can consider ourselves in a position to trace the Roman route to the Highlands, every camp occurring in the districts traversed by them should be examined in the light of what is known of Roman methods, and also compared with the military works which, in the present state of our knowledge, are referred to the pre-Roman and post-Roman inhabitants of the northern part of the island; indeed the whole subject of earthworks calls for further inquiry. There are certainly Norman earthworks put down as Roman. There are some rectangular enclosures regarded as Roman camps which are only the moats of fortified manor-houses, and some so-called Roman outposts which are only medieval tower-mounds.

It is less common, I think, to refer any British earthworks, wholly or in part, to the Romans. This arises from the essential difference between the two classes of entrenchment. In the Roman camp we find as a rule a fortified enclosure thrown up to meet the requirements of an invading force generally ignorant of the country and of the numbers and distribution of the enemy, and constructed according to a rigid military system, with direct reference to the number of troops by whom it is thrown up and by whom it is to be occupied. The rules of castrametation have been laid down somewhat differently by different Roman writers, but in all essential particulars, such as concern us in our present inquiry, they are the same.

The camp is pitched in an open place on the line of march. The troops cannot wander far for water or other requisites. The camp is defended by men who know exactly what position to take in case of attack. There are no women and children, nor cattle and household goods. All they require is a line of stockaded earthworks to check a rush, and clear ground all round so that they can see the advancing enemy. Camps were thrown up on the march as if they might become permanent, and stations intended to be permanent were constructed on the same lines, of which the mode of defence was understood by every Roman soldier.

Now let us inquire what the conditions were under which the British camps were constructed. There seems to be sometimes an impression that some, if not most, of these were thrown up to oppose the Romans. A moment's consideration will show that such earthworks must be quite exceptional. All accounts agree in describing the British races and their nearest continental allies as very brave, with many warlike appliances peculiar to themselves, and clear evidence that they had continual exercise in the art of war. They could not in the few years of Roman advance have learned to construct fortifications, and certainly their camps were not suggested by the Roman camps, from which they differed in position, form, and arrangements for access. They did not then learn for the first time how to throw up an earthwork or make a scythe-axled chariot.

In the next place we know that amongst the inhabitants of these islands there were various races, differing from one another in physical characteristics, in habits of life, and in amount of civilization, and that they were readily stirred up against one another; in fact, that they must have lived in an almost perpetual state of warfare. What, then, were the preparations that such people had practically to make with a view to avoid collision, and to provide for the safety of their families and property when the outbreak of hostilities became inevitable. The great cause of disagreement was pursuit of game or straying of cattle beyond their own property, and now and then the driving home of rather more cattle than had strayed. Therefore, where natural features did not impose a sufficiently clear and easily-maintained boundary, a strong stockaded earthwork was constructed to mark the boundary, to keep in straying cattle, and to check raiding; and, as this was likely to be thrown up along the lines determined by previous fighting, it would probably coincide wholly or partly with strong and easily-defended frontier lines.

When, however, a *casus belli* had occurred, and an invasion of an adjoining territory was decided upon, slaughter of the enemy and spoil by way of indemnity were what was sought for. The spoil was probably the chief inducement in most cases in those early days, as it was down to much later times, in the Highlands, where the pinch of poverty often drove the bravest of the hillmen to raid the cattle of the lowlands, and solved the difficulty of agricultural depression by the confiscation of neighbours' goods and the reduction of the surplus population which generally followed each such attempt.

The invaded tribes, on the other hand, if not prepared or strong enough to meet the enemy in the field, must withdraw to some stronghold to which access was easy for them, but resistance could be offered with better chance of success should the enemy attempt to follow them. It would not do for them to be too much hurried, for the whole community, women, children, cattle, and goods, had to be got into the fort. There could be no such thing as a prolonged siege. The place must be stormed or held till organised resistance or failure of provisions compelled the enemy to withdraw. In looking about for a suitable position for such a stronghold the natives would get away from the great thoroughfares and choose a place where they would have room for all the inhabitants of the district and their cattle; but, having regard to their personal safety, would construct an inner and stronger retreat, into which they would be crowded only in the last extremity. This was not the sort of work to be done in haste in the face of an enemy. The British camps show care in selection of the position and in the construction of the lines. The people and the cattle may be expected to have time enough to get in, through a gap in the outer earthwork, to travel along the bottom of the fosse, perhaps half round the camp before they come to the opening through the next rampart. The enemy cannot thus advance along the fosse, which is commanded along the whole line of march by the vallum above. They must take the place by a rush straight across all the ramparts.

Thus there is an essential difference in the object and mode of construction of the Roman and British camps, and as a general rule it is quite easy to pronounce at once whether a camp belongs to one or the other. But there are some apparent exceptions, as, for instance, if the Roman route lay over high and broken ground and the natural features conveniently lent themselves to the strengthening of the camp, as at the north end of the Pennine range. In the case of the British camps also, if the tribe lived on the lowlands and the camp of refuge could not be placed on a hill or, if the natural features necessitated a rectangular form, there is sometimes a difficulty in assigning the camps to their proper origin. Such a case occurs in the camp of Ardoch (see fig. 1) in Strathallan, in Perthshire. This celebrated camp is situated about 2½ miles from Greenloaning station on the Caledonian Railway, and about a mile north of where the Knaik runs into the Allan. Orchill moor lies to the north, and part of the forest of Glenertney to the north-west. Sudden attacks on the inhabitants of that part of Strathallan were more to be expected from the north and north-west than from any other quarter. Instead therefore of looking to the moor and the forest for their retreat, these were rather a source of danger. So they must build a stronghold in the most easily defended position they could find on the undulating ground by the rivers. Such a position was offered by the terraced banks of the Knaik at Ardoch. (See fig. 1.) The river has cut a steep cliff along the west side, then turning slightly eastward forms a flanking ditch, while an old river course extends from it eastward in front of the terraced slope which forms the south face of the camp. A similar sudden but somewhat less regular fall of the ground on the east leaves the area between it and the river in the form of a rectangular promontory which was easily converted into a very strong position by earthworks such as the British knew well how to construct. The north side was least defended by nature, and therefore a strong earthwork was thrown up from the steep scarped slope down to the river along the north front and about halfway down the east side. Within this there were four or five lines of embankment forming a kind of labyrinth. For although it appears that the ends of the first and second lines could be passed above the scarped river bank at the north-west corner, access to the interior of the camp could only be gained by forcing a probably palisaded bank in front or advancing along the whole northern front of the camp in the fosse, exposed to the missiles of the defenders. At the north-east corner there was another opening into the camp, where the defenders, if pressed along the same line, might enter. There is an inner fosse running to somewhat of a point at the north end of the camp as indicated by the dotted line in fig. 2. It is not clear whether this belongs to the original camp or is a modification of later date.

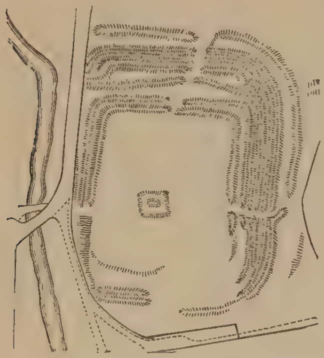

Fig. 1.
The Ardoch Camp as it now appears, reduced ¼ from the 25-inch Ordnance map.

The British camp (fig. 2) was stormed, or at any rate occupied, by the Romans, who constructed a rectangular camp (fig. 3) entirely within the British lines, with a high vallum, a deep fosse, and small raised banks on each side of the fosse.

In order, therefore, to understand the structure of the camp at Ardoch, as now seen, we have to place fig. 3 on fig. 2 and the combination gives fig. 1.

Fig. 2 is clearly a British camp, only rather more nearly rectangular than usual, owing to the accident of the form of the ground.

Fig. 3 is an obvious Roman camp. It had four symmetrically placed gateways, and a level raised road was carried across the British lines up to each gate: the Romans thus at the same time destroying the labyrinthine entrances of the Britons and providing a direct access to their own gates. The Roman vallum commanded all the outer earthworks, and the Roman fosse was entirely cut off from all the ditches and intervals between the lines of the British camp.

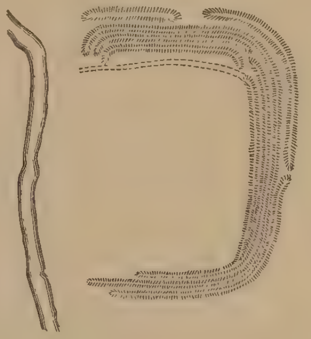

Fig. 2.
The lines of the British Camp.

It is not easy to make out in every case how far the Romans when they occupied a British camp found it necessary to alter the outer earthworks. One point however is, I think, clear, namely, that the Romans did not want to have so many lines to defend. That was foreign to their mode of warfare, so they finished off and joined up some of the British unterminated banks, as may be seen at the south-east end of the outer northern rampart.

Along the south side most of the lines of both camps have been destroyed in recent times.

The views as to the age and origin of different parts of the camp of Ardoch, which are put forward in this paper, are all founded on the form of the camps and the character of the entrenchments, and I have no evidence to offer from excavations or objects found in or near the lines. It is recorded on the 25-inch Ordnance map that a stone coffin with human remains was found in 1825 on the slope south of the camp, but this was close to the site of an ancient chapel, and may have been an interment in connection with it. From the same source we learn that a leaden coffin, with human remains, was found in 1832 about 200 yards east of the camp, but I am unable to give any further particulars respecting these finds. Yet I think I have offered sufficient evidence from the character of the earthworks to prove my point. It was not the Roman custom to throw up such a succession of

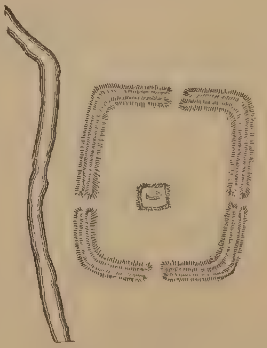

Fig. 3. The Roman Camp.

outer banks, and it was not in accordance with British methods to construct a central stronghold with four symmetrical entrances, while neither the one nor the other would be so foolish as to build a series of strong defensive lines, and then neutralise them by carrying roads across them on every side. The whole is however explained on the supposition that the Britons raised the outer works and the Romans the inner lines, and that the Romans made the roads to their four gates across the British lines.

There is an enclosure on the north of the camp which has been described as a procestrium, and, resting on the north front of the camp as a base, there are remains of earthen banks enclosing a still larger area. Cutting into this on the west side there is another similar, but probably more ancient, enclosure, the lines of which run obliquely to those of the other enclosures and of the camp. It is probable that these were merely the boundaries of the villages or area over which the dwellings of the natives were built, and within which they kept their cattle, and that they were thrown up at different times; that furthest to the west, it may be, even before the camp was constructed.

These earthworks are what are called by General Roy[a] the three *camps* at Ardoch,[b] as distinguished from the fortified position described above (fig. 1), which he speaks of as the *Station*.[c]

In the beautifully illustrated work published by our Society more than a hundred years ago, but after the death of its distinguished author, the relative position of all the earthworks referred to is clearly shown, and many details are given of structures which have been since obliterated.

When we have satisfied ourselves that the Romans occupied a pre-existing British camp at Ardoch, and threw up their own lines inside it, we have opened before us many suggestions for further inquiries. When was the British camp originally constructed? Was there first a native settlement here, and, if so, what encroaching new-comers made it necessary in later times to construct a fort? Or did the town grow up around a strong outpost of an invading people? Was it ever modified, and did it ever change hands in pre-Roman times, and did any tribe hold it and live on there after the Romans had gone? We cannot help feeling that this is a place where possibly great results might be obtained by judicious excavation around the camp and in the earthworks to the north of it.

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[a] *Military Antiquities of the Romans in Britain*, by the late William Roy, F.R.S., F.S.A., Major-General, &c., &c. Published by the order and at the expense of the Society of Antiquaries of London, 1793.

[b] *Ibid.*, pp. 62, 63, Pl. x., Pl. xix.

[c] *Ibid.*, Pl. xxx.

XVI.—*The Mausoleum at Halicarnassus. A new Restoration.* *By* EDMUND OLDFIELD, *Esq., M.A., F.S.A.*

Part I. Read June 15 and June 22, 1893.

INTRODUCTORY.

It is with unfeigned hesitation that I venture to bring forward a new restoration of the Halicarnassian Mausoleum. For more than a century the form of this celebrated monument has been the enigma of architectural antiquaries, and down to the present time no solution has received so unanimous an assent as to be deemed conclusive. It is not indeed surprising that the earlier theories, those of Caylus, Choiseul-Gouffier, Canina, Texier, and others, should have been discordant, and to most minds unsatisfactory; for they were founded solely on the notices of the building found in ancient authors, and these notices are brief, desultory, sometimes veiled in figurative language, and sometimes to all appearance contradictory to each other, if not to themselves. Even the ingenious and tasteful designs of the late Professor Cockerell and Mr. Edward Falkener were prepared in ignorance of any material remains beyond the few slabs of sculptured frieze procured in 1846 by Sir Stratford Canning from the citadel of Budrum. But when at length it was resolved to supplement theory by fact, and to procure monumental in addition to literary evidence, when the resoures of the British Government were liberally placed at the disposal of an eminent archæologist, to excavate the whole site of the Mausoleum, and bring to England all the remains of its architecture or sculpture which could illustrate its construction, it might have been expected that the mists of uncertainty would have disappeared in a flood of light. But very different has been the event. The publication of the results of this exhaustive exploration seems to have left the controversy little nearer to settlement than it was before. A kind of a negative progress has indeed been made by the elimination of some few elements previously open to doubt, but ample material for difference remains in the various methods of combining the elements which are deemed certain. The dodo was not reconstructed beyond cavil from the preserved specimens of its skull and foot, though supplemented by ancient portraits as well as descriptions; and the comparative anatomy of mausolea is a less exact science than ornithology. Two carefully studied and elaborate restorations have been published in this country since the expedition to Budrum, and one, no less studied and elaborate, in Germany. The first appears to have been originally the production of Lieut. R. M. Smith, R.E., who commanded the engineering staff of the expedition, and was revised and completed by the late Mr. R. P. Pullan, F.R.I.B.A., who was added as architectural adviser; and this restoration was adopted by Mr. (afterwards Sir Charles) Newton,[a] the chief of the expedition, in the learned and able treatise brought out in 1862, in which he explained his discoveries to the world.[b] The second restoration is that of the late Mr. James Fergusson, the well-known writer on architecture,[c] and this is in somewhat trenchant opposition to the theory of his immediate predecessor.[d] The third is that of Herr Christoph Petersen, published at Hamburg a few years after the treatise of Mr. Fergusson.[e] This restoration modifies considerably the architectural scheme of Sir Charles Newton and Mr. Pullan, and perhaps, in an æsthetic sense, improves it; but it is not the result of any fresh archæological evidence, or any critical recension or new interpretation of ancient texts. The scheme adopted by Sir Charles Newton has the unique advantage of being founded on personal observation of all the incidents of discovery by a highly trained explorer, and on several months' study both of the site itself and of each discovered architectural fragment in its pristine state. That of Mr. Fergusson bears the stamp of his long and perhaps unequalled acquaintance with the architecture of all ages and countries, his remarkable powers of analysis and comparison, and his clear and forcible method of statement. It will not, I trust, be thought that I am wanting in deference to the ability and attainments of either of these distinguished critics, or insensible to the services they have each in different ways rendered to archæological science, if I venture, in the interests of learning, to submit their theories to the same frank though friendly examination to which I am perfectly willing to surrender my own.

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[a] Since this and the two following papers were read to the Society, this distinguished archaeologist, by whose valuable discoveries at Budrum the present investigation was originally suggested, has passed away.

[b] *A History of Discoveries at Halicarnassus, Cnidus, and Branchidæ;* by C. T. Newton, M.A., assisted by R. P. Pullan, F.R.I.B.A. 2 vols. Folio. London, 1862.

[c] *The Mausoleum at Halicarnassus restored in conformity with the recently discovered Remains;* by James Fergusson, F.R.I.B.A. London, 1862.

[d] The earlier portion of this essay was written several years ago, during Mr. Fergusson's lifetime; but I see no reason to modify anything I have said in it of that able and accomplished architectural critic, and, I may add, lamented friend.

[e] *Das Maussoleum, oder das Grabmal des Königs Maussolos von Karien.* Ein Vortrag, gehalten zur Geburtstags-Feier J. J. Winckelmann's im Jahre 1865 von Chr. Petersen. Hamburg, 1867.

The questions I propose to investigate are two:

I. What was the architectural form of the Mausoleum?

II. What was the most probable arrangement of its principal sculptures?

The first and more important question I propose to investigate thus:

A. I shall examine all the passages in ancient authors which give detailed descriptions or measurements of the building. Under this head I shall incidentally bring the principal restorations hitherto proposed to the test of literary authority.

B. I shall examine and compare all the extant remains of ancient sepulchral monuments which seem to present, whether as survivals or modifications, some probable indication of architectural features in the Mausoleum.

C. I shall endeavour to deduce from the results of the two preceding processes certain essential propositions, to which any authentic restoration of the building must in my opinion conform.

D. I shall submit the plans, elevations, and sections of a new restoration, not as pretending to any confidence in the correctness of all its details, many of which are purely conjectural, but simply as an illustration of one manner in which the propositions thus deduced might practically be applied.

A. Evidence of Literature.

The references to the Mausoleum in ancient literature, so far as still extant, are well known, if not always well understood; nor is it in my power to cite any descriptions of it which have hitherto escaped notice. The following Greek and Latin writers, named here in approximate chronological order, mention it with more or less of admiration: Vitruvius, Hyginus, Strabo, Pliny the Elder, Martial, Aulus Gellius, Pausanias, Lucian, Cassiodorus, and Vibius Sequester.[a]

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[a] There was a description of the Mausoleum in the treatise of Philo of Byzantium, entitled *De septem Mundi Miraculis*, which is said by Choiseul-Gouffier (*Voyage Pitt. de la Grèce*, tome i. p. 158) to have been full and minute; but as the portion of Philo's treatise which contained this description has long been lost, it can be merely on presumption that Choiseul-Gouffier characterises it as he does.

Of these Strabo, Aulus Gellius, Pausanias, and Cassiodorus speak in laudatory, but only general and indefinite, terms of the size of the building, the splendour of its decorations, and its celebrity as one of the Seven Wonders of the World. Lucian adds to these praises that of costly material, and in a satirical vein, which recalls the well-known epitaph of Dr. Evans on Sir John Vanbrugh, banters the shade of Mausolus for the heavy weight which lay upon his corpse. None of these five writers, however, throws any real light on the question before us, and none of them, therefore, need detain us further at present.

Vitruvius gives more definite information, useful for some purposes, but, unfortunately, not for our present one, the determination, namely, of the building's architectural form. In his Second Book, *cap.* viii. 37, he describes the topography of Halicarnassus and the position of its chief buildings, including the Mausoleum, which, like the last-mentioned writers, he names as among the *Septem Miracula.* But this passage, though of service to Sir Charles Newton in fixing the site for his explorations, determines nothing as to the architecture of the monument. In another place, *lib.* vii. *præf.* 8, he gives the names of the two architects who built the Mausoleum and who also wrote a treatise upon it, as well as the names of the sculptors who decorated it, in the following words: "De Mausoleo [scripserunt] Satyrus et Phyteus; quibus vere felicitas summum maximumque contulit munus . . . Namque singulis frontibus singuli artifices sumpserunt certatim partes ad ornandum et probandum, Leochares, Bryaxis, Scopas, Praxiteles, nonnulli etiam putant Timotheum; quorum artis eminens excellentia coegit ad septem spectaculorum ejus operis pervenire famam." Here again, however, we find no distinct statement of the form of the building. Certain questions suggested by the mention of one of its two architects may be more appropriately considered at a later stage of this inquiry.

Contemporary with Vitruvius was C. Julius Hyginus the grammarian, who was surnamed "Polyhistor," according to Suetonius, for his archæological knowledge, and is commended by St. Jerome for his distinguished learning. But the two extant works which bear his name are so devoid of the literary merits to be expected in one who, besides being the subject of these encomiums, was Librarian of the Palace under Augustus, that the best critics regard them either as mere compilations from his writings made by an incompetent hand, or as the compositions of some other Hyginus living in a later and less scholarly age. The following statement therefore, occurring in the *Fabularum Liber* (*fab.* 223) has generally been accepted with hesitation, notwithstanding its apparent exactness:

"Monimentum regis Mausoli, lapidibus lychnicis, altum pedes LXXX., circuitu pedes MCCCXL." The word "lychnicis" is evidently to be understood as *Parian*, since Pliny[a] says that the white marble of Paros was called "lychnitis." The circuit of 1,340 feet has by common consent been taken as that of the *peribolus*, or enclosed ground around the monument. The boundary wall of this ground was traced by the explorers on the north side for 337 English feet; so that, if the enclosure was precisely square, its circuit would have extended to 1,348 English feet, a dimension which, if turned into Greek measures, is only a few feet less, or if turned into Roman measures, not many feet more, than that given by Hyginus. This coincidence, which is certainly curious, is thought by Herr Petersen to entitle the other statement of Hyginus, which records the height of the building, to greater deference than it has hitherto received. The figure named for the height, 80 feet, seems, *primâ facie*, at variance with the description of Pliny to be presently quoted, in which the height is given as 140 feet. Sir Charles Newton and Mr. Pullan, thinking the two statements quite incompatible, make no attempt to reconcile or explain them, but at once dismiss that of Hyginus, as the inferior authority, from further consideration. Mr. Fergusson, not to be thus beaten, has discovered a solution of the discrepany which is at least ingenious. On the ground "that the text of Hyginus" (according to him) "is avowedly corrupt," he suggests that for *pedes* we might read *cubitos* or *cubita;* and then, assuming that the cubit mentioned by any author in connection with the Mausoleum would mean the Babylonian cubit of 21 inches, he points out that 80 of such cubits would correspond exactly with the 140 feet of Pliny. Such an explanation, if admissible, would not merely dispose of the variation between the two writers, but would form a strong argument for the theory put forward, though not positively affirmed, by Mr. Fergusson as to the measures in use at Halicarnassus. But as no manuscript of Hyginus gives any other reading than *pedes*, the substitution of *cubitos* seems to me, if I may use such a phrase, not within the rules of the game; at any rate, not within those rules by which I shall hold myself bound in endeavouring to meet the acknowledged difficulties of the most genuine ancient accounts.

It will be convenient to take Martial next, reserving Pliny, though a somewhat earlier writer, to the last, as his description of the monument requires a longer and more laborious examination.

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[a] *Lib.* xxxvi. *cap.* v.

Martial's words are as follow:

> "*Aere* nec *vacuo pendentia* Mausolea
> Laudibus immodicis Cares in astra ferant."
> *De Spectaculis, Epig.* 1.

Here we have a phrase not merely laudatory, like so many in the writers already named, which I have passed over as of little or no value for our purpose, but essentially descriptive. It would be a great error to treat the language of poetry in such a passage as having no definite meaning. Truth of description is as essential in poetry as in prose. It differs only in its form of expression. Descriptive prose presents the mechanical facts, visible, tangible, measurable; descriptive poetry the image which those facts collectively, and often unconsciously, produce in the mind. The one gives an objective delineation, the other a subjective. The latter expresses character rather than actual form; and for this purpose it often, as here, employs metaphorical rather than literal phraseology. But it is not the less true, when rightly read. We may be as certain that the predominant character of the Mausoleum as an architectural monument is truly conveyed by the words "hanging in empty air," as that its length, height, and perimeter are correctly expressed by the measurements recorded in Pliny. What then is the predominant character implied in Martial's words? Clearly, they cannot be disposed of as referring merely to the exceptional height of the building. The great pyramid of Ghizeh is more than three times the height of the Mausoleum; yet to describe it as "hanging in empty air" would be little short of ridiculous. Nor can the words refer even to any aerial elevation of the site of the building. The Parthenon on the Athenian Acropolis was more loftily placed than the Mausoleum; yet no one acquainted with that edifice would describe it as "hanging in the air." The only reasonable interpretation of the words surely is, that they describe some remarkable peculiarity of structure, and the question for us is, what that peculiarity was. Fortunately, we are not without a key furnished by Martial himself to his use of the word *pendentia*. For in his Second Book of *Epigrams* he says of Selius:

> "Inde petit centum *pendentia* tecta columnis,
> Illinc Pompeii dona, nemusque duplex."
> *Epig.* 14.

Now, whatever may have been the particular building referred to in the first of these lines, we may safely assert that its roof did not "hang" from its hundred columns, but lay securely on the top of them. There is in fact little doubt that the building intended was a colonnade or ambulatory adjoining the

Theatre of Pompey at Rome, and running out at right angles to it, having two parallel rows of columns, fifty in each row. For upon a fragment of the ancient marble Plan of Rome (Fig 1), now in the Capitoline Museum, this colonnade is inserted, with the word *hecatostylum*, somewhat mutilated, at its side.[a] The building itself, which was designed as a promenade, such as was frequently attached to Roman theatres, was roofed above, and sheltered on one side by a wall with *exedrae* in it, but was entirely open on the other side, so that both rows of columns, with the passages beside them, were seen from without. Obviously, then, the explanation of the word *pendentia* in this passage is to be found in the many intercolumnar spaces through which the spectator beheld the ceiling, poised, as it were, overhead. If the roof of the building referred to had rested altogether on continuous walls instead of on open colonnades, no poetic licence would have justified Martial's suggestion of its "hanging." But as it rested as much, or in fact more, over spaces as over columns, such a metaphor is felt to be not unfitting. Apply this to the Mausoleum; and the natural conclusion is, that by the words "hanging in empty air" the poet meant to convey, that the one characteristic of the building which impressed the imagination of the Carians was that its roof, or the architectural covering which served as a roof, rested, like the *hecatostylum*, not upon continuous walls, but chiefly or altogether upon columns, pilasters, or isolated piers, round and through which the air circulated freely, so that the whole seemed in a manner suspended from above, rather than supported from below. How this peculiar openness of structure was in fact realised in the Halicarnassian monument will be considered hereafter. For the present it suffices to mark what was the predominant and distinctive character of that monument, as indicated by one of our chief literary guides.

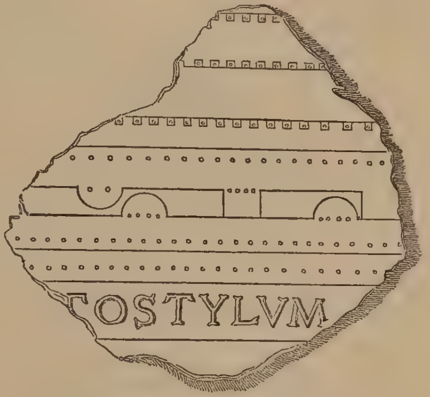

Fig. 1. Fragment of the *Pianta Capitolina.*

Now, of all the restorations of the Mausoleum which have yet been published the one which most fully realizes the description of Martial is the design of the late Professor Cockerell,[a] which was somewhat modified and certainly improved by Mr. Watkiss Lloyd,[b] and more fully elaborated by Mr. Edward Falkener in his interesting article on the subject brought out in 1851.[c] The peculiarity of this design was that the pyramidal roof rested upon a peristyle 63 feet long by 52½ feet wide, showing the thirty-six columns mentioned by Pliny arranged dipterally, twenty-two in the outer row and fourteen in the inner, with only a very small *cella* in the centre, so that the whole area, if cut up into thirty squares, contained twenty-eight open spaces to only two solid ones. (See plan, Fig. 2.) The Carians might without much hyperbole have lauded such a construction as a quasi-meteoric prodigy. But unfortunately the result of Sir Charles Newton's excavations proved fatal to the dipteral theory; for the remains discovered of the actual roof involved necessarily an enlargement of its area to an extent in which it could not be safely supported by a peristyle of only twenty-two columns in the outer and fourteen in the inner row. This scheme, in consequence, had to be abandoned even by its authors.

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[a] Luigi Canina, *Architettura Antica, sezione* iii. *L' Architettura Romana* (Rome, 1830-40), Pl. CI. from which the plan in the text is taken.

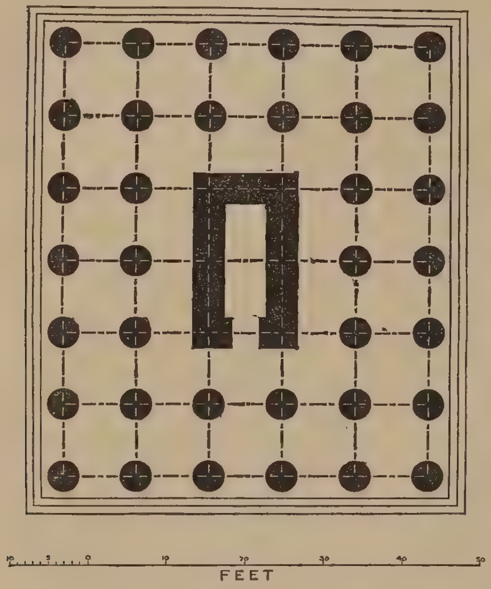

Fig. 2. Plan of Mr. Falkener's restoration.

On the other hand, the restoration which is most incompatible with the poet's language is that which, though bearing the stamp of Sir Charles Newton's authority, may be more correctly entitled Mr. Pullan's (Fig. 3). In this scheme the monument consists of a basement and superstructure of nearly equal height. The basement, which in cubical dimensions includes considerably more than half the building, is an unbroken rectangular block, 65 feet high, 119 feet long, and 88½ feet wide, certainly in itself a stupendous pile of inarticulate masonry. Nor does the superstructure, or ornamental story, show any unusual lightness. Around the core, or so-called *cella*, which is constructed internally upon the principles of the prehistoric chambers of Mycenæ and Orchomenus, and may boast of a similar Titanic strength, runs a peristyle which presents to the eye no greater openness or novelty than is to be found in every peripteral temple. Far less aerial in construction would even the upper story have been than a building at Rome which must have been most familiar to Martial, having been burnt and rebuilt in his lifetime,

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[a] Described in the *Classical Museum*, v. 193-6, in a letter from Mr. Cockerell published in an Article on the "Sculptures of Halicarnassus," which was written by Sir Charles Newton some years before his discoveries at Budrum. It is engraved in the *Museum of Classical Antiquities*, i. 164.

[b] *Archæologische Zeitung*, iii. 81.

[c] *Museum of Classical Antiquities*, i. 157.

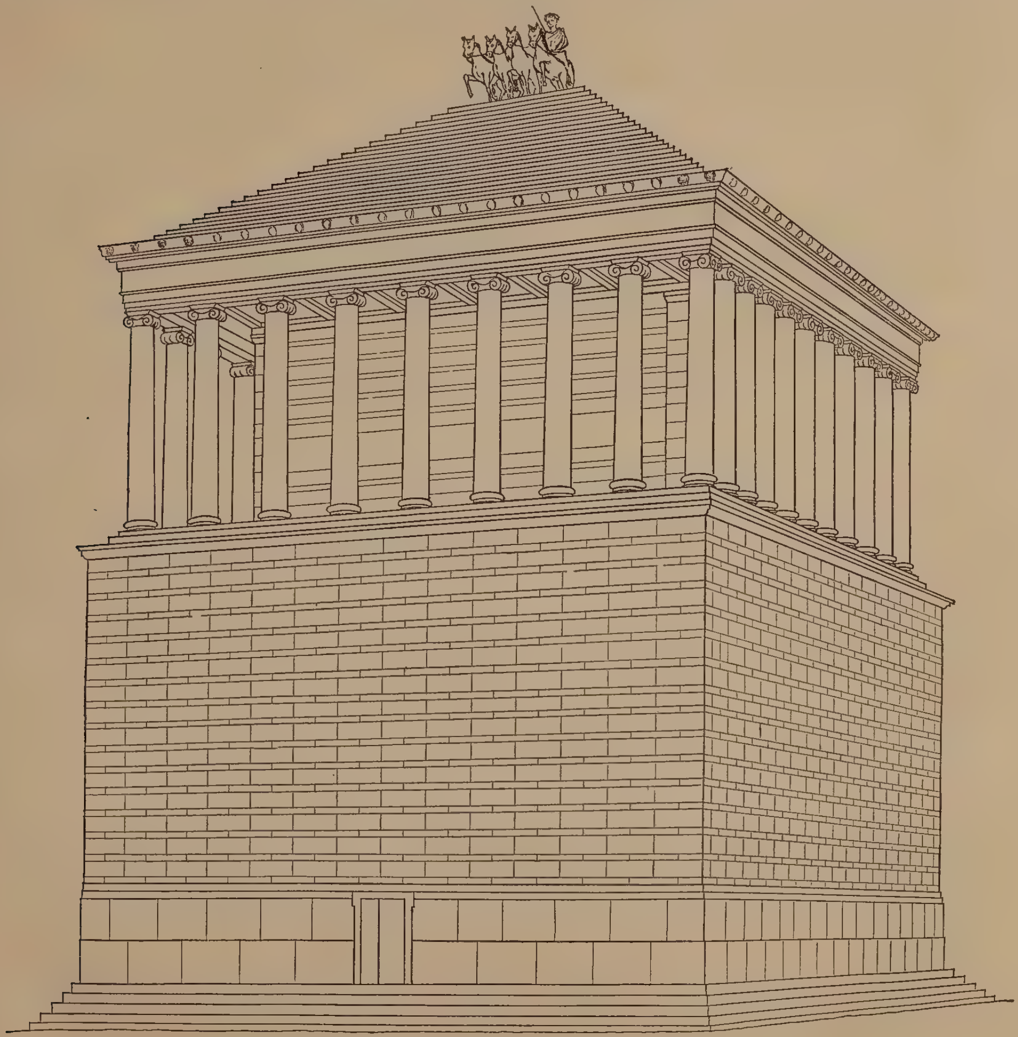

Fig. 3. Mr. Pullan's Restoration of the Mausoleum.

and being probably within sight, and certainly within ten minutes' walk, of his house on the Quirinal, the Temple of Jupiter Capitolinus. Taking Mr. Pullan's design in its entirety, basement and superstructure together, it may be doubted whether there could be found in the whole range of Greek architecture a work so remarkable for colossal massiveness and solidity. If such had really been the form of the Mausoleum, the vaingloriousness of the Carians would more naturally have boasted that it was evolved out of the rock than suspended from the skies.

Mr. Fergusson has shown himself more justly sensible of the importance of Martial's words. Whilst adopting a design for the superstructure not essentially differing from Mr. Pullan's, he has substituted for the solid basement a kind of *cryptoporticus*, or diaphanous groundstory, the ceiling of which is supported partly by an outer range of detached piers, forming what he terms a "peristele," and partly by inner rows of piers and columns, arranged so as to give a clear view through this part of the building (Fig. 4). The required characteristics, as represented by the poet, the "pendant edifice," the "empty air," are here undoubtedly attained. But they are attained only by applying to the lower story a system of construction which ordinarily belongs to the upper; and this is open to objection both on archæological and artistic grounds. For, on the one hand, no precedent for such a construction is to be found amongst the sepulchral monuments of antiquity. And, on the other, the imposition of a lofty superstructure, enclosing within its peristyle a walled chamber, or *cella*, and surmounted by an exceptionally heavy roof, upon a basement perforated *à jour*, so that the solids are built over the voids, and the principal story of the monument appears to rest upon stilts, would not, as it seems to me, be compatible with that sense of structural stability which is essential to repose, and which was never wanting in pure Greek art.

Before passing to Pliny it is necessary to refer, at least cursorily, to a passage in an author of uncertain but evidently late date, Vibius Sequester, the geographer. In the section of his Glossary entitled *De Gentibus*,[a] he says: "Mausoleum in Cariâ altum pedum CLXXX, in circuitu pedum CCCC; ibi est sepulchrum regis lapide lychnite," a statement which resembles that of Hyginus in definiteness and somewhat in form, but conflicts with it in the dimensions given. Nothing whatever is known of the author except from his work; and this proves him, in the opinion even of his editor Hesselius, to have been a man "of no great judgment or ability, though not absolutely ignorant." To attempt to reconcile the testimony of Sequester with that of Hyginus, or to determine the relative

[a] P. 37 (8vo. Strasb. 1778).

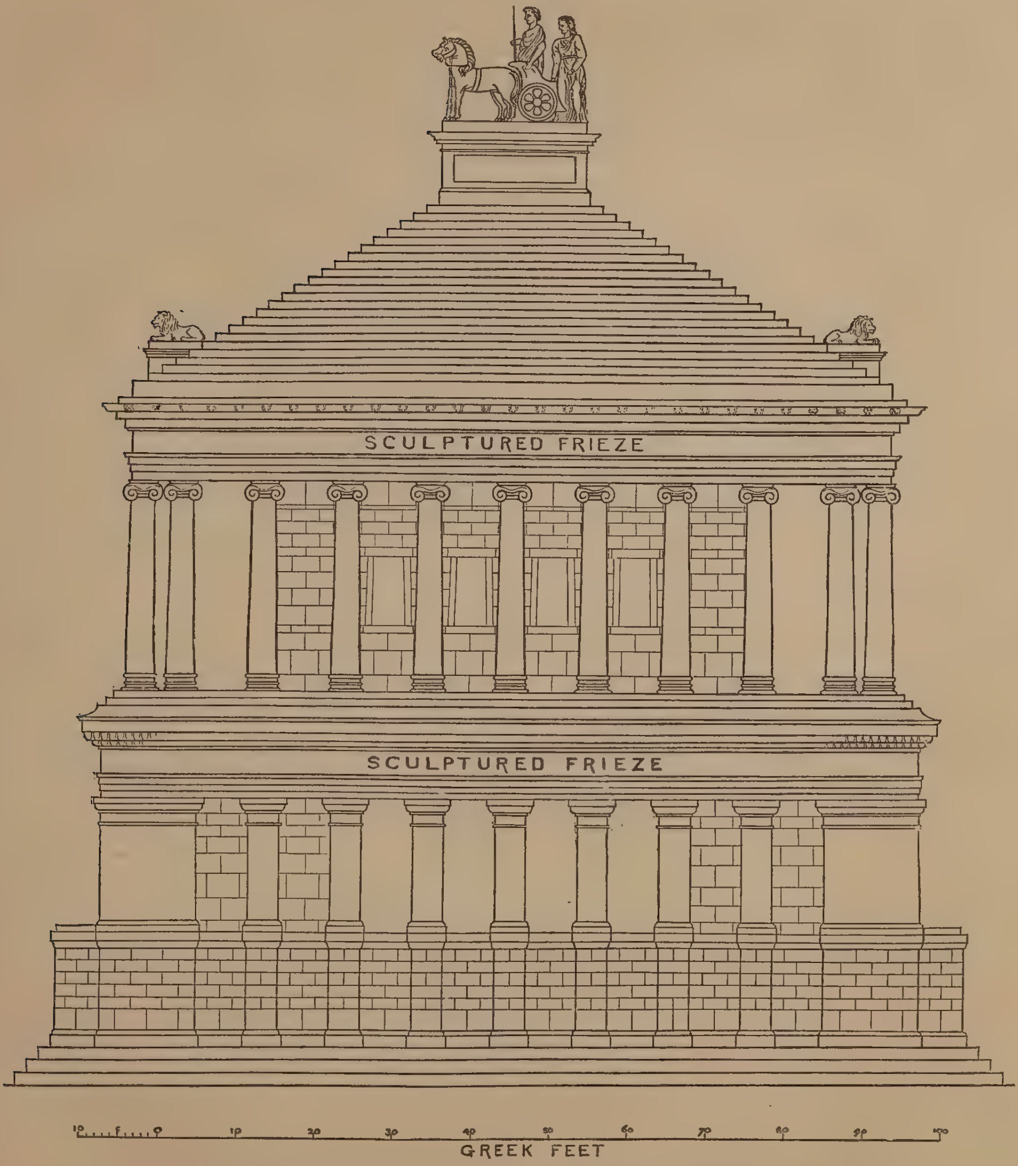

Fig. 4. Mr. Fergusson's Restoration of the side of the Mausoleum.

weight of each, if irreconcileable, would be an unprofitable task. Having therefore cited the statements of both writers, such as they are, we will, without further discussing them, proceed finally to a document of higher rank.

This is the well-known passage in Pliny's Natural History, *lib.* xxxvi. *c.* 5, the most important by far of all the ancient authorities. Unfortunately there are many variations in the published texts of this passage, so that the first question to be determined, and by no means an easy one, is, what did Pliny really write? I have myself never personally inspected any of the many extant MSS. of the author (of which Caylus[a] professes to have collated thirty-seven); nor, if I had inspected them, should I be competent to throw any new light on their respective claims to authority. I can only venture to comment, and that with much diffidence, on the several versions as they appear in print. Amongst these the most generally accepted are the versions given in the two editions of the "Natural History" published by Julius Sillig, one dating from 1831-6, the other from 1851. During the production of the first of these editions a new MS. of the thirty-sixth and some other books of the "Natural History" was discovered by Ludwig von Jahn in the library at Bamberg, written, in Jahn's opinion, by an Italian scribe of the tenth century, but attributed by others to a German monk of the eleventh. On becoming fully acquainted with this MS., Sillig found it so superior to all others on which he had previously relied, both in general composition and more particularly in the filling up of previous *lacunæ*, that he adopted it as the basis of his second edition. In so doing he was led to alter in three places the text of the paragraph describing the Mausoleum, as given in his earlier edition. The corrections he made will be best shown by printing the whole paragraph as it stood in the first edition, and marking with italics the words altered or added to in the second.

"Scopas habuit æmulos eadem ætate Bryaxin et Timotheum et Leocharem, de quibus simul dicendum est, quoniam pariter cælavere Mausoleum. Sepulchrum hoc est ab uxore Artemisia factum Mausolo Cariæ regulo, qui obiit Olympiadis centesimæ sextæ anno secundo. Opus id ut esset inter septem miracula ii maxime artifices fecere. Patet ab Austro et Septentrione sexagenos ternos pedes, brevius a frontibus, toto circuitu pedes *ccccxi;* attollitur in altitudinem viginti quinque cubitis; cingitur columnis triginta sex. *Pteron vocavere.* Ab Oriente cælavit Scopas, a Septentrione Bryaxis, a Meridie Timotheus, ab Occasu Leochares; priusque quam peragerint, regina obiit. Non tamen recesserunt nisi absoluto jam, id gloriæ ipsorum artisque monumentum judicantes; hodieque certant manus. Accessit et quintus artifex. Namque supra Pteron pyramis altitudine inferiorem *æquavit*, viginti quatuor gradibus in metæ cacumen se contrahens. In summo est quadriga marmorea quam fecit Pythis. Hæc adjecta centum quadraginta pedum altitudine totum opus includit."

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[a] *Mem. de Litt. tirés des Registres de l'Acad. des Inscr. et Belles Lettres*, xxvi. 321 (1753).

The following are the alterations made in the second edition:

1. For CCCCXI is substituted CCCCXXXX.
2. After *Pteron vocavere* is inserted *circumitum.*
3. For *æquavit* is substituted *æquat.*

For the first and third of these corrections Sillig has no authority but the Bamberg MS. For the second he has, besides the Bamberg MS., the support of several others, referred to in his marginal notes. Modern commentators generally, prior to Sir C. Newton, have adopted the text of Sillig's first edition, which is in fact the same which had been given in most, or at any rate the best, of the preceding editions of Pliny. Sir C. Newton, however, writing after the publication of Sillig's second edition, has made it the foundation of his comments on the whole paragraph, though, for reasons which he gives, he has declined to be bound by its text throughout. He has accepted the second and third of Sillig's emendations, but rejected the first. Mr. Fergusson, though writing at a still later date, has taken no notice of the variations in the two editions, or of the reasons on which they are grounded, seeming almost to have been ignorant of the changes Sillig had made. He has printed a text which practically adopts Sillig's second emendation, but rejects the first and third, and in all other respects corresponds with Sillig's first edition.

Insignificant as these verbal differences may at first sight appear, they in reality involve architectural conditions on which the true scheme of restoration may not improbably be found largely to depend. I shall, therefore, make no apology for examining *in limine* what I may call the several editorial or literary reasons for or against each reading; and this I shall do, as far as I can, without bias, that is to say, without regard to the bearing of such readings upon any special theory of restoration to be hereafter considered, though not, of course, without regard to those primary architectural facts which underlie the whole question, and affect all theories alike. And here a certain difference is to be noted between our position and Sillig's. He seems to me, though a learned and careful editor, to have felt himself to be an editor only, and to have therefore been influenced by a not unnatural wish to avoid involving himself in the meshes of the "restoration" question. With that view he seems to have adopted a somewhat summary method of determining between the several variations of the MSS. in this paragraph. His experience in other passages of Pliny having satisfied him that the Bamberg codex was, on the whole, the most trustworthy of all that are known, he resolved to adhere to it unreservedly, through rough places and smooth, without regarding any considerations lying outside the text, which might possibly involve him in architectural speculations. But for us, who are engaged in the architectural inquiry, it is impossible to dispose of all the textual variations in so simple a way. We cannot but feel bound, in dealing with a reading found in any received manuscript, to inquire not solely into the general literary repute of that manuscript as compared with others, but also into the inherent probability or improbability of the reading itself, as tested by any scientific criticism which may, without prejudice to the most judicial neutrality, be applicable to such a subject. Now there is one characteristic of all the readings borrowed by Sillig from the Bamberg codex. They are all *primâ facie* plausible, and two of them tend to the removal or mitigation of supposed obscurities or inconsistencies in Pliny's grammar. The monkish transcriber of the Bamberg codex, or else perhaps the transcriber of that which is technically called its *archetype*, was evidently above the average in learning and intelligence. But, paradoxical as it may sound, intelligence itself is not without its dangers in such an operation as copying, since it furnishes a constant temptation to solve difficulties in the text by ingenuity rather than to transcribe mechanically what the copyist does not himself understand. The result is, that we are here presented with a version which reads easily enough, but is not perhaps on that account more likely to be really authentic than a version which frankly retains some discrepancies or obscurities requiring to be reconciled or cleared up. Let us examine the three disputed passages separately.

1. In the first passage the question is, whether the *totus circuitus* was given by Pliny at 411, or 440 feet. Now no MS. cited either by Sillig or any other editor gives any other figure than 411, except the Bamberg codex, which gives 440. Surely, this is a case where, in deciding between the several copyists, numbers must have more weight than even superior intelligence. Suppose, for illustration, it were a question of the amount of a legacy bequeathed in a lost but still valid will, like that of the first Lord St. Leonard's. Suppose, that out of a dozen persons who had each transcribed the will before it was lost, writing at different times and independently of each other, eleven had written down the amount as £3,000, but the twelfth had written it as £2,000. Suppose, at the same time, that the copy of the twelfth transcriber had in other parts of the will been found more grammatical, more consistent, more apparently authentic, than any of the other copies. Still, in a mere question of the correctness of a transcribed figure, would not any sensible judge prefer the authority of the eleven independent and unanimous

copyists to that of the single dissentient, however superior his intelligence might have been found elsewhere?

Again, let us look to the figures themselves, and consider to which of the two readings any inaccuracy in the copyist would more naturally incline. Sillig, in his preface to his second edition, states his opinion that all the known codices of the Natural History were derived, directly or indirectly, from one archetype, written in uncial characters, and that copies of this were made, from which the now extant codices were transcribed. If this be so, it is probable that the copy from which the Bamberg codex was made would have been uncial, like the archetype. Now the uncial character is, in Sillig's opinion (as he illustrates by several examples in his preface), very liable to misreading in the copying of letters with an upright stroke, such as I, L, or T. Of course, if the number mentioned in the archetypal codex of Pliny had been written in words, it is very unlikely that any confusion would have arisen between words so different as *undecim* and *quadraginta*. But if, as the actual confusion seems to prove, it was written in Roman numerals, the difference between the two readings would be merely that between CCCCXI and (according to a form of notation common in ancient as well as modern times) CCCCXL. That is, the question would simply be, whether the last letter in the archetype had or had not a horizontal bar at the bottom. Now suppose that letter to have been somehow blurred or defaced in the copy from which the Bamberg codex was immediately taken. The scribe, in deciding how to render it, had not the knowledge which we have, that all the other codices gave the letter as I. Driven therefore to his own speculations, he might not unnaturally argue that, as Pliny's description seems to imply that the Mausoleum was a quadilateral building, the figure 440, which is not only a multiple of 4, but which might also be so divided as to suit either an oblong or square ground plan, would more probably express the building's perimeter than 411, which, without fractional subdivision, would fulfil neither of these conditions. And if this argument satisfied his mind, he might resolve to obviate any future doubt as to the reading of the last letter by altering the form of notation to one equally appropriate and less liable to misreading, the CCCCXXXX of the Bamberg codex. But whether or not this explanation, which of course is purely hypothetical, had any foundation in fact, the general balance of evidence from all the MSS. collectively appears to me to be in favour of the reading 411, and to this accordingly I shall adhere.

2. The second question is, whether the word *circumitum* should be inserted after *Pteron vocavere.* Here the MSS. do not speak with decided voice. Some of good character besides that of Bamberg, such as the Vossian, the Riccardian, the

Toletan, and the Parisian *d*, insert the word. Others omit it; and these last must, in Sillig's opinion at the date of his first edition, have carried the balance of authority, since he then excluded the word from his text. But the discovery of the Bamberg codex led him, as in the preceding case, to alter the reading. Let us, however, before deciding whether or not to follow him, consider, as before, the inherent probability or improbability of the emendation. Supposing then that Pliny wrote simply *Pteron vocavere*, it is not improbable that a scholiast with a smattering of architectural knowledge would think he elucidated the meaning by writing *circumitum* in the margin of his MS., and a subsequent transcriber, thinking the sentence deficient with only two words, would transfer the third word from the margin to the text. But supposing, on the other hand, that Pliny wrote *Pteron vocavere circumitum*, no corresponding motive would have tempted any transcriber to omit the last word. Nothing but carelessness could explain his default; and this carelessness must be ascribed either to the writer of the archetypal codex, or concurrently to a large number of transcribers of that codex, working independently of each other; which last is a very difficult supposition. But what after all would the sentence of three words tell us? "They called the surrounding ambulatory (that is the peristyle) a *pteron*." Of course they did. Every tyro in architectural nomenclature knew, after the publication of Vitruvius, that the colonnade and ambulatory surrounding a building were together termed a *pteron*, for on this word the classification of temples as apteral, peripteral, monopteral, dipteral, etc., was founded. When Pliny could only afford half a dozen lines to the whole description of the architecture of the Mausoleum, is it likely that he would waste a sentence, even of only three words, on such a truism as this? But strike out the word *circumitum* and let the sentence read "they called it the *pteron*." It is then at once seen that the writer is not using the word *pteron* in its every-day sense, but telling us that they (that is, the architects and other artists) applied the word in an exceptional sense to a certain part of the building of peculiar architectural construction, which is here being described.[a] What that part of the building was, is to be collected from the preceding sentence, reaching from *Patet* to *sex*. "It," he says, "extends" so much; "it is raised" so much; "it is surrounded," etc.; and then he adds, "they called it the *pteron*." Now what does he mean by "it"? No nominative is given in the sentence itself. Nor is it to be inferred from the preceding part of the paragraph. It is not

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[a] It is to be noted that the very same form of expression is used by Pliny, with the same emphatic terseness, in describing a part of the great Egyptian labyrinth, *Pteron appellant. Lib.* xxxvi. *c.* 13.

Mausoleum, for that Pliny afterwards says was 140 feet high, whilst what he is here describing was only 25 cubits. It is not *sepulchrum*, for that either is, in a wider sense, synonymous with *Mausoleum*, and therefore equally inadmissible, or else, in a narrower sense, means the actual place of burial, and this Sir Charles Newton's researches have shewn to have been merely a subterranean chamber. The true nominative then is the understood thing which he presently says they called the *pteron*. *It* is the whole of that part of the building which alone he considers of sufficient importance to require its dimensions, and the number of its surrounding columns, to be stated in detail; in other words, it is the principal story. If any doubt remains as to this interpretation, it may be dispelled by what Pliny afterwards says of the surmounting pyramid, that it rose *supra pteron*; for manifestly the pyramid did not rise over the peristyle, or *circumitus*, but over the whole story which the peristyle surrounded. To this story then I shall henceforth apply exclusively the title of *pteron*. The result, as regards the text, is, that the word *circumitum* must in my opinion be rejected as an interpolation.

3. Lastly, are we, in the description of the pyramid, to read *æquavit* with Sillig's first edition, or *æquat* with his second? Here again the Bamberg codex, which substitutes the present for the præterite tense, stands alone; and alone therefore among the published editions of Pliny stands this second of Sillig's, which adopts the newly discovered text. But here likewise, as with Sillig's first emendation, I would not rely solely on numbers in opposition to the judgment of so eminent a critic, but would consider to which side the intrinsic probability of the case, judged merely on literary grounds, seems to incline. Throughout the description of the Mausoleum, setting aside the one word now in question, Pliny uses uniformly verbs in the present tense, *patet*, *attollitur*, *cingitur*, *est*, *includit*. In describing the acts of men he uses the præterite, *fecere*, *vocavere*, *cælavit*, *recesserunt*, *accessit*, *fecit*. To substitute *æquat* for *æquavit*, therefore, in the description of the building, is to bring the discordant verb into conformity with its fellows. But what is the real bearing of this *primâ facie* improvement, which we owe to the Bamberg transcriber, on the question of authenticity? Is not the very conformity thereby obtained, when fairly considered, a ground of distrust rather than of confidence? Does not the convenient removal of a difficulty form a somewhat suspicious recommendation of the credibility of any evidence upon a matter of fact? And here we are dealing merely with a matter of fact, namely, which of two words did Pliny use? On such a question I venture to affirm, however paradoxically, that the apparently improbable word, if only equally well attested, is more likely to be authentic than the apparently probable. If Pliny

really wrote *æquat*, no transcriber would have thought of turning it into *æquavit*. But if he wrote *æquavit*, and especially if the last syllable of the word chanced to be imperfectly legible in the copy before the transcriber, that transcriber might naturally prefer to adopt the tense which he found in all the other verbs used in the same connection, and so put it down as *æquat*. On the twofold ground therefore, firstly, of the numerical preponderance in manuscript authority, and secondly, of the real probability which is in such cases the offspring of apparent improbability, I accept the reading of Sillig's first edition rather than of his second, and retain *æquavit*.

Thus the conclusions I have arrived at on each of the three passages in question are these: 1. In common with Sir Charles Newton and Mr. Fergusson, I retain the original reading of CCCCXI., rather than adopt the new one of CCCCXXXX., which is found in the Bamberg codex alone. 2. In opposition to Sir C. Newton and Mr. Fergusson, but in accordance with most of the best esteemed codices, though not with the Bambergensian, I reject the word *circumitum* as a gloss. 3. In common with Mr. Fergusson, but in opposition to Sir C. Newton, I retain the long undisputed reading of *æquavit* in preference to *æquat*, which the Bamberg codex alone offers as a substitute for it. Thus I adhere throughout to the first edition of Sillig, and decline all the supposed improvements of the second, a conclusion which fortunately places me on the same practical starting ground as nine-tenths of preceding restorers.

Before quitting, however, the subject of variations in the text, it is necessary to notice an emendation adopted by Sir Charles Newton in the sentence describing the pyramid. In that sentence he recommends the substitution of *altitudinem* for *altitudine;* and, acting at once on this recommendation, he has, with Mr. Pullan, determined from the noun in its altered case the heights of the principal divisions of the building in their joint scheme of restoration.[a] The emendation is not absolutely new, having before been suggested by Jahn and some others as a possible improvement of the text, though without claiming for it any authority.[b] But unfortunately this reading is not to be found in any trustworthy manuscript, and it has accordingly not been admitted into Sillig's or, as far as I know, any other modern edition of Pliny. Following Sir Charles Newton, Herr Petersen has silently adopted this convenient emendation,[c] his motive of course being the same as his predecessor's, to get rid of the necessity imposed by the laws of grammar for interpreting the really authorised text in a manner incompatible with any scheme of restoration which he could devise. The principles, however, on which the present inquiry is conducted do not allow me to entertain such a solution of any difficulties, real or supposed, in the literal acceptance of the best established text. To be a restorer first, and a critic afterwards, would be an inversion of the functions of scholarly investigation to which Sir Charles Newton, I am persuaded, would not deliberately have assented. Rather, I think, he would have acceded to my view, that it is our duty, as expositors of Pliny, to adapt our interpretation to the most surely authenticated text, not the text to our interpretation, and that if we cannot fairly reconcile the two, we had better abandon the restoration altogether.

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[a] Newton, *A History of Discoveries at Halicarnassus, etc.*, ii. 191.

[b] *Berichte der Leips. Gesellsch.*, 1850, p. 126.

[c] *Das Maussoleum, etc.*, 12.

Now, unwilling as I am to throw any slight upon writers who have generally been far superior to myself in learning and literary experience, the necessity of truth, as well as thoroughness of investigation, compels me not to conceal my opinion that, in drawing their conclusions from Pliny's description, none of the critics who are at the same time restorers of the Mausoleum have accepted his authority frankly, and few, if any, have even translated his words faithfully. Those who offer an English version of the whole paragraph have generally, whether to evade difficulties, or merely to give an ornamental turn to their language, presented us with a paraphrase rather than a translation. Sir Charles Newton, indeed, opens his commentary upon it with a declaration to which I cordially and unreservedly assent. "A more consistent result," he says, "can be obtained by accepting Pliny's account literally than by any process of conjectural emendation or forced construction." But, unfortunately, he has found himself unable to adhere in practice to the principle thus so justly laid down. Not merely does he proceed, only two pages later, to recommend and practically act upon the convenient "conjectural emendation" which has just been noticed, but in the chapter contributed by Mr. Pullan, he (Sir Charles Newton) publishes Pliny's paragraph, both in Latin, with his own initials attached, and also in an English translation, edited at least if not composed by himself, which is far from "literal," and by no means scrupulously accurate in some critical phrases.[a] The only safe course, I venture to say, where the meaning of any sentence in an ancient author is doubtful, is to abjure all circumlocution and ornamentation, and translate the sentence literally, if possible, word for word, from beginning to end, like a plodding schoolboy. This humbler method I am content to adopt, and accordingly submit the following plain, however inelegant, English version:

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[a] Thus the words *Pteron vocavere circumitum* are rendered, "The part surrounding the tomb was called the Pteron," though the writer's own discoveries had shown that the "tomb" was below the level of the ground, and the "Pteron," as he himself understands it, was more than sixty feet above.

"Scopas had as rivals in the same age Bryaxis and Timotheus and Leochares, of whom it is right to speak together, since they equally adorned with sculpture the Mausoleum. This is the sepulchre made by his wife Artemisia for Mausolus, ruler of Caria, who died in the second year of the hundred and sixth Olympiad. That that work should rank among the seven Wonders [*i.e.* of the world] those artists mainly brought about. It extends on the South and North to sixty-three feet, to a shorter space on the fronts, in its entire circuit to four hundred and eleven feet; it rises to its height by twenty-five cubits; it is surrounded by thirty-six columns. They called it the Pteron. On the East Scopas sculptured it, on the North Bryaxis, on the South Timotheus, on the West Leochares; and before they had completed it, the Queen died. They did not however withdraw, unless when it was quite finished, judging it to be a monument to the glory of themselves and of Art; and to this day their hands appear in competition. There came in also a fifth artist. For above the Pteron a pyramid equalled in height the one below, contracting itself by twenty-four steps into the summit of a meta. On the top is the marble quadriga which Pythis made. This having been added includes the whole work in a height of one hundred and forty feet."

It has been suggested by Sir Charles Newton that Pliny, in drawing up this description, was making extracts from the treatise of Satyrus and Phyteus, who are recorded by Vitruvius as the architects of the building, a treatise which was probably still extant in Pliny's day. It has thence been argued by him, that every statement actually made by Pliny must be accepted as authoritative, and his description treated as strictly correct as far as it goes, though unfortunately that is not far enough to convey a full and clear idea of the building intended. This is the theory of interpretation which I likewise adopt. I regard the description generally like a collection of authentic fragments of a broken statue, whose disjointed limbs must be reunited just as we find them wherever they will fit, and pieced out by restoration wherever they leave a void. But what limbs do the fragments represent, and where and how great are the blanks between them? What portion of the original treatise has Pliny reproduced, and what has he omitted? This is the crucial question, which the several restorers answer differently. Let us see how far we can get towards the true answer simply by analysing Pliny's description somewhat more closely than has hitherto been done, following merely the laws of logic and grammar, without for the present calling in any collateral means of interpretation. What then does Pliny say?

1. Firstly, he says: *Patet ab Austro et Septentrione sexagenos ternos pedes.* The words are simple, and the only question is, to what part of the building he meant them to apply. There is nothing, however, in logic or grammar, to assist us in answering that question, and it must therefore remain in suspense till we can call in aid from a different quarter.

2. Next, he says: *brevius* (*i.e. patet brevius*) *a frontibus.* This, it is unanimously agreed, must refer to the two faces of the building not before named, that is, the east and west. But why does he say *a frontibus*, instead of *ab Oriente et Occasu?* Clearly, because he wished us to understand that the fronts, using the word in an emphatic and distinctive sense, were on those faces of the building which he is now speaking of, namely, the east and west, and not on the north and south. It was necessary for him to tell us this. The mere direction of these two faces to sunrise and sunset did not of itself imply that they were "fronts," for there was no orientation of sepulchres among the Greeks, as there was generally of temples. Neither did their shortness of dimensions, as compared with the north and south faces, imply it. For if relative shortness alone had implied necessarily the distinction of being fronts, then to tell us that "the building was shorter on the fronts" would have been equivalent to saying that "it was shorter on the shorter faces," an obvious and inane tautology. Besides, so far from relative shortness implying necessarily identity with frontage, the inference from analogy is rather, of the two, the other way. For, as a matter of fact, setting aside ancient temples and modern churches (and the Mausoleum was no more the one than the other), a large, and probably the larger, number of important buildings, when standing alone and not hampered in space, as in streets, have in all ages and countries been longer on the fronts than on the sides. It follows, therefore, that the title of "fronts" must have been given by Pliny to the east and west faces of the building neither on account of their direction nor of their relative shortness. Can we, then, avoid concluding that it was given on account of some distinctive structural feature which marked them out at once to the spectator as being of more architectural importance than the north and south sides? The mere allocation of an entrance door to the east or west would not suffice for this purpose; for, besides that it would not apply to more than one front, the doors of ancient sepulchres were never of striking prominence, and indeed seem sometimes to have been designed to avoid notice rather than to court it. There must, therefore, in all probability, have been some feature of strong

character attached to these faces of the building, which affected its general design; and this would naturally have been found in its principal story, the Pteron. Of all the restorers of the Mausoleum Canina alone seems to have comprehended this necessity. By the introduction of pediments over the colonnades he has given the required structural dignity to the east and west ends, as the legitimate fronts.[a] In what manner I would myself effect the same purpose will be seen under a later head of the present essay.

3. Thirdly, Pliny says: *Toto circuitu pedes quadringentos undecim; attollitur in altitudinem viginti quinque cubitis; cingitur columnis triginta sex.* Here I see nothing to call for verbal or grammatical criticism. As with the words recording the length, the only question is, to what part or parts of the building this description is meant to apply. The exact application which I should give to each specification of cubits and feet, with its respective method of measurement, cannot properly be stated at this stage of the inquiry. The only general conclusion from the passage before us which our present examination suggests is this: that as the length, perimeter, and height mentioned by Pliny are all comprised in the sentence extending from *Patet* to *sex*, and as that sentence, as has already been shown,[b] relates solely to the Pteron, it follows that the dimensions therein given must all refer, somehow or other, to the Pteron, and to no other part of the building. And the same inference applies to the allocation of the thirty-six columns which surrounded it.

4. The next statement which bears on the architectural construction (omitting the passage from *Pteron* to *manus*, which has no relevance to the present question) is *Accessit et quintus artifex.* Here and henceforward every word is of importance. *Accessit*, "there came in," that is, as an additional or supplementary worker. *Et*, "also," a word likewise implying something superadded to what had been said before. *Quintus artifex*, "a fifth artist." Why is this artist distinguished from the other four, Scopas, Bryaxis, Timotheus, and Leochares? Why not named at first with them, as one of *five* who together executed the sculptures, and of whom, therefore, Pliny had to speak jointly (*de quibus simul dicendum est*)? Why also is the part of the building on which he worked not described together with the description of the rest of the building? Why only mentioned later on, after a sentence containing a short episode of history, Artemisia's death, and its effect on the artists engaged? Why again (returning to the beginning of the paragraph) does Pliny call Bryaxis, Timotheus, and Leochares, rivals of Scopas

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[a] Luigi Canina, *Architettura Antica, sezione* ii. *L' Architettura Greca* (Rome, 1834-41), Pl. CLVIII.

[b] *Sup.* pp. 288, 289.

eadem ætate, as though to imply that the artist to be thereafter mentioned was not quite "in the same age"? To these questious Pliny himself seems to be intending to reply by beginning the next sentence with the explanatory adverb *Namque*, explaining, that is, how it came about that there was room for a fifth artist's intervention. And how does he explain it? *Namque supra pteron pyramis altitudine inferiorem æquavit.* Note the tense of the verb. Not *æquat.* For the first and only time throughout the description of the building, as distinguished from the description of men's acts, Pliny uses the præterite. He must have meant something by this. Latin is not a loose language, and Pliny is not a loose dealer in words. His diction, habitually concise, and therefore suffering sometimes from the Horatian penalty of obscurity, is always pregnant with meaning, even in cases where that meaning may not be what we now think the wisest. Here his meaning, as most naturally and logically interpreted, is to distinguish between two periods in the construction of the building, the period of Scopas with his three contemporary rivals, and the period of Pythis. To show more clearly what the later artist did, he first describes exactly the form in which he found the pyramid. *Pyramis altitudine inferiorem æquavit, viginti quatuor gradibus in metæ cacumen se contrahens.* That is, he found it a complete pyramid, pointed like a meta, and graduated into twenty-four steps. But he wished to crown it with a quadriga, and this could not be placed on a meta's point. He therefore (as I believe, and will endeavour to prove more particularly hereafter) truncated the pyramid sufficiently to make a platform for his quadriga. Henceforth the pyramid no longer equalled in height the pyramid in the lower part of the building, and no longer comprised so many as twenty-four courses of steps. But on the new and truncated summit or platform thus obtained he placed the quadriga which was still standing in Pliny's day, and which is therefore mentioned by him in the present tense. *In summo est quadriga marmorea, quam fecit Pythis.* This sculptural addition so increased the total height of the monument that Pliny, again using a verb in the present tense (*includit*), gives the whole at 140 feet. And thus the change of tense in *æquavit* from the tense used with the other verbs is not only intelligible, but full of instructive meaning. The reason why, for the first and only time throughout his description of the building, Pliny used the præterite tense is because, for the first and only time, he was mentioning a feature which no longer existed in the same form when he wrote.

5. In this interpretation of the real work of Pythis, the sense of Pliny has been collected from the sum of the whole passage from *accessit* to *includit.* But two phrases occur in that passage which I have reserved for separate notice. One

is the statement, *pyramis altitudine inferiorem æquavit*, or, as I have translated it, "the pyramid equalled in height the one below," the word *pyramidem* being constructively implied or understood in the sentence. Sir Charles Newton calls this "a forced construction." But surely in this he is making a confusion between Pliny and his interpreters. Pliny's own phrase may, from its conciseness, be thought obscure; perhaps even it is amenable to the epithet "forced." But given that phrase, the construction here put upon it is not "forced." On the contrary, it is the most, if not the only, grammatical, and therefore natural, construction which the words will admit. The really "forced constructions" are those of my various predecessors, for they require, to help them through, either the perversion of the text by changing an ablative case into an accusative, as is done by Sir Charles Newton, or the assumption which is quietly made by most other Mausoleum restorers, that we should understand a word which is not constructively contained in the sentence, and has therefore no *locus standi* in grammar, such as *partem*, *molem*, or the like.

6. The other phrase remaining for separate notice is: *pyramis in metæ cacumen se contrahens*. Here it is to be noted that Pliny does not compare the whole pyramid to a meta, but only its contracted summit to the *cacumen* or point of a meta. The form of a Roman meta is familiar to us from coins and bas-reliefs.[a] It is distinctly shown on a well-known terra-cotta panel in the British Museum, of which an outline is here printed (Fig. 5). It was an elongated cone, and to it therefore Ovid poetically likens the form of the cypress tree with its steep sides and pointed head.[b] To describe a pyramid, whose height was only a quarter of the length and a third of the breadth of its base, as resembling such an object as this, would be little less than absurd. But the *cacumen* of the meta was naturally a mere point, though commonly kept just large enough to carry some small finial ornament; and to this point Pliny compares the apex of the pyramid arrived at by twenty-four contractions. What then is to be thought of the delineation of this apex, this likeness of a meta point, in either of

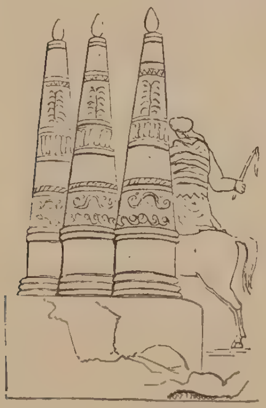

Fig. 5. Three Roman Metæ. (From Smith's *Dictionary of Greek and Roman Antiquities*, s. v. *Circus*).

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[a] Several examples of *metæ* are represented by Canina, *Architettura Romana*, Pl. CXXXVII.-VIII.

[b] *Metas imitata cupressus.* *Ovid. Metam.* lib. x. v. 106.

the forms here reproduced (Fig. 6) from the publications of my three immediate predecessors?

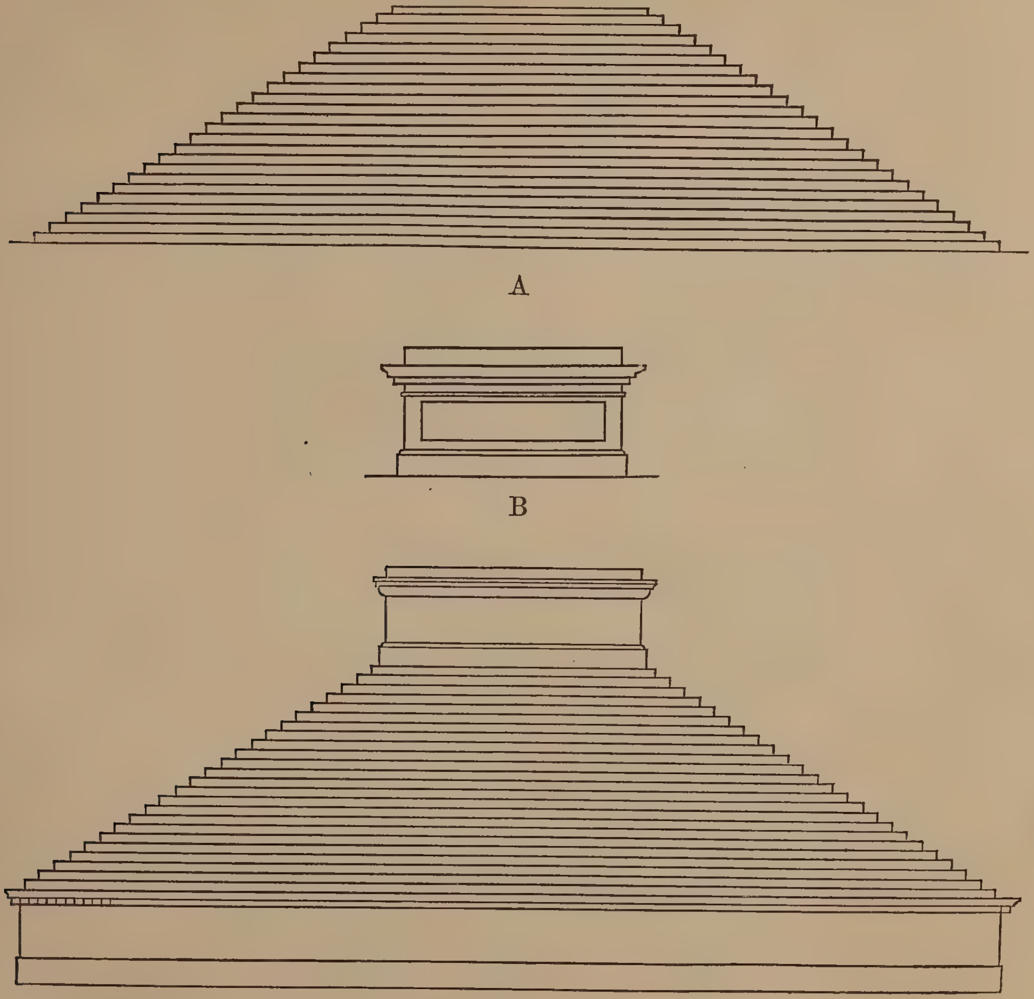

Fig. 6. Three imitations of the summit of a meta: A, as designed by Mr. Pullan; B, as designed by Mr. Fergusson; C, as designed by Herr Petersen.

The first of these exhibits Mr. Pullan's pyramid; the second Mr. Fergusson's pedestal for the quadriga, which he expressly names as the equivalent of the meta in question;[a] the third is Herr Petersen's conjoined pyramid and pedestal. The idea that any ancient author familiar, like Pliny, with the Roman circus, would select either a meta, or the *cacumen* of a meta, as the object most nearly resembling any of these three forms, is one which it would be impossible for me to discuss with seriousness. It will, therefore, be more consistent with the respect I feel for each of these learned writers to pass at once to a different question.

7. The last word to be noticed in the paragraph is the proper name Pythis. It has been suggested by Brunn[b] that this artist was probably the same person as the architect Phyteus, or Pythius, or Pitheus, as different editors give the word, who is said by Vitruvius to have, jointly with Satyrus, designed and built the Mausoleum, though his name may have been disguised as Pythis by the looseness of old orthography. This suggestion has been accepted without question by Herr Petersen,[c] and seems to have the approval of Sir Charles Newton.[d] I have already quoted from Vitruvius the passage in which the two architects of the building are mentioned, but have reserved till now any comment which either of their names might involve. Now, if it is implied in Brunn's hypothesis that the quadriga and its platform were included in the original design of the building, the theory here set forth of an alteration of the pyramid by Pythis must fall to the ground, a conclusion which of course I cannot accept. But if it is only meant that Phyteus, or whatever the architect's name may have been, after completing, together with Satyrus, the pyramid in its normal form, may have been dissatisfied with its effect, and may therefore at a later date, when acting alone as sculptor as well as architect, have altered it in the manner here described, I am not concerned, in defence of my own theory, to dispute such a proposition. Indeed, I may myself point out, in favour of this last supposition, that Phyteus is by most writers identified with the Phileus (or Pythius) named by Vitruvius as the architect of the temple of Athene Polias at Priene,[e] which is known from its dedicatory inscription to have been built under Alexander of Macedon from fifteen to twenty years after the Mausoleum.[f] Assuming this

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[a] Mr. Fergusson's words are, "This leaves a platform on the summit of twenty Greek feet by sixteen, on which to erect the *pedestal* or *meta*, which is to support the quadriga." *Mausoleum of Halicarnassus Restored*, p. 28.

[b] *Gesch. der Griech. Künstler*, vol. ii. s. 376.

[c] *Das Maussoleum*, 12.

[d] *A History of Discoveries at Halicarnassus, etc.*, ii. 55.

[e] *Vitruvius*, lib. vii. *Præf.*, s. 8.

[f] Dilettanti Society, *Ionian Antiquities*, Pt. IV. p. 23 (Newton) and p. 30 (Pullan).

identification to be correct, Phyteus might naturally enough, whilst employed at a place not far distant from Halicarnassus, have taken the opportunity to revisit and examine his former work with a fresh eye, and might then have observed how he could improve it by adding a sculptural group on its summit. On the other hand I feel bound to note: 1. That no confirmation of Brunn's hypothesis is to be obtained from any historical authority; for neither as architect and sculptor combined, nor as sculptor alone, is Pythis, or any one of similar name, mentioned by any extant author, except by Pliny in these few words. Brunn indeed draws from this silence an argument against the existence of any such sculptor, except in the person of the architect Phyteus. But as there were heroes before Agamemnon, whose names have passed into obscurity for lack of a commemorating bard, so doubtless there were good artists even in historic times whose record has perished altogether from the mere deficiency of the annals of art; and fortunate therefore is one whose reality is attested by even a single mention. When we reflect, on the one hand, how innumerable were the statues, and therefore probably how numerous were the sculptors, in the various Greek states, and on the other, how small is the portion of ancient literature which has survived to our times, how brief and cursory are the notices of artists even in Pliny, and how few of those noticed, except the very greatest, are mentioned at all elsewhere, we shall hardly conclude that the fact of being only once named suffices in itself to throw doubt on any sculptor's existence. 2. Neither does Brunn's hypothesis find any confirmation in the words of either of the authors who have handed down to us the disputed name. Vitruvius, after mentioning Satyrus and Phyteus as joint architects and historians of the Mausoleum, remarks simply on their singular good fortune, *quibus vere felicitas summum maximumque contulit munus*, in having the building they had erected and described brought at once into worldwide renown by the admirable works of the sculptors who decorated it.[a] Now, if one of the architects had himself executed the most important group of statuary which adorned the building, Vitruvius would hardly have spoken of his good fortune in obtaining exceptional credit for his architecture through means of a sister art without mentioning how he had himself contributed to that result by his successful achievement in the sister art. Nor do Pliny's words, taken in their straightforward and natural sense, accord any better with Brunn's suggestion. Neither the verb *accessit*, nor the description *quintus artifex*, could have been properly applied by him to one whose architectural design must have preceded all other work, unless in the sense already referred to, that the same person reappeared afterwards in a new character; and of this far from obvious meaning he would surely have given us at least some hint. If, however, as on the whole seems more probable, Pythis was in fact a distinct person from the architect, it is not in consequence necessary to suppose him much posterior to Scopas and his three immediate rivals. From the purity of style, and dignity of treatment, shown in the remains we possess of the quadriga and its two occupants, it may safely be concluded that their sculptor, whoever he may have been, belonged to a still brilliant age of art. In conclusion, it needs only to be pointed out that the question of identity or diversity in the persons of Phyteus and Pythis does not affect the main inquiry now in hand. Whether the artist who truncated the pyramid to receive his quadriga was or was not the same as he who at an earlier date had helped to design it in its original form, the work was equally an alteration, and the paragraph of Pliny, as read in the best authenticated texts, can only be grammatically and logically interpreted by keeping that alteration in view.

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[a] See the passage from Vitruvius cited at p. 276.

Here then ends the information I have been able to collect from ancient authors as to the architectural form of the Mausoleum. But there remain two writers of the sixteenth century whose notices of the remains of the building in times not much anterior to their own are each entitled to attention, and one of them to careful study.

1. The first is Fontanus, a jurisconsult of Bruges, who, in his history of the war between the Moslem invaders and Christian defenders of Rhodes, first published at Rome in 1524, relates that the Knights of Saint John, in 1402, alarmed by the conquests of Tamerlane in Asia Minor, resolved to occupy and fortify Budrum, then known as Mesy; and under the direction of Heinrich Schlegelholt, a German knight, built themselves a castle on the peninsular headland which adjoins, if it does not constitute, the site of the ancient royal palace. This castle, Fontanus says, was constructed in great measure with materials taken from the Mausoleum: *Ex ruinis Halicarnassi piramidibusque Maussoli sepulchri .... struere coepit Henricus Schlegelholt.*[a] It may be concluded from the fact of the building materials of the Mausoleum being then available for removal that the monument itself had previously become a ruin; and Sir Charles Newton is of opinion that it had been overthrown by an earthquake some time in the thirteenth or fourteenth century. But the one word in Fontanus' account which bears on our present investigation is *piramidibus*, which, being in the plural, seems to con-

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[a] Fontanus, *De bello Rhodio*, lib. ii. Bog. K. i. s. 2, ed. Hagenau, 1527.

firm the theory that the Mausoleum had, when perfect, a lower, as well as an upper, pyramid. I do not wish to put too much weight on Fontanus' authority; for it may certainly be doubted, both whether he had any authentic and accurate intelligence of what the ruins consisted of in 1402, and also whether, in speaking of "pyramids," he used the word in its literal and exact sense. But subject to these reservations, his statement may be noted as at least in accordance, as far as it goes, with the interpretation I have given to Pliny's description.

2. The second writer is entitled to much greater consideration. Indeed, his description of the Mausoleum in a state of ruin is inferior in importance only to Pliny's description of it when in a state of perfection. This writer is Guichard, who, in his *Funerailles et diverses manières d'ensevelir des Romaines, Grecs, &c.*, published at Lyons in 1581, gives the following narrative of the discovery of the remains of the building, as related to D'Alechamps, an early editor of Pliny, by an eye-witness, and communicated by D'Alechamps to Guichard himself:[a]

"L'an 1522, lors que Sultan Solyman se preparoit pour venir assaillir les Rhodiens, le Grand Maistre sçachât l'importance de ceste place, et que le Turc ne faudrait point de l'empieter de premiere abordée, s'il pouvait, y enuoya quelques chevaliers pour la remparer et mettre ordre à tout ce qui estoit necessaire soustenir l'ennemi, du nombre desquels fut le Commandeur de la Tourette Lyonnois, lequel se treuua depuis à la prise de Rhodes, et vint en France, ou il fit, de ce que je vay dire maintenât, le recit à Monsieur d'Alechamps, personnage assez recognu par ses doctes escrits, et que je nomme seulement à fin qu'on sçache de qui ie tien une histoire si remarcable. '*Ces chevaliers* estans arriués à Mesy, se mirent incontinent en deuoir de faire fortifier le chasteau, et pour avoir de la chaux, ne treuuans pierre aux environs plus propre pour en cuire, ni qui leur vinst plus aisee, que *certaines marches de marbre blanc, qui s' eslevoyent en forme de perron* emmy d'un champ près du port, là ou jadis estoit la grande place d'Halycarnasse, ils les firent abattre et prendre pour cest effect. La pierre s'estant rencôtree bonne fut cause que ce peu de maçonnerie, qui paroissoit sur terre, ayant esté demoli, ils firent fouiller plus bas en esperance d'en treuuer d'avantage. Ce qui leur succeda fort heureusement: car ils recognurent en peu d'heure, que *de tant plus qu'on creusoit profond, d'autant plus s'eslargissoit par le bas la fabrique*, qui leur fournit par apres de pierres, non seulement à la faire de la chaux, mais aussi pour bastir. *Au bout de quatre ou cinque jours,* apres avoir faict une grande descouverte, par une apres disnee ils virent ouverture comme pour entrer dans une cave: ils prirent de la chandelle, et *deualerent dedans*, ou ils treuuerent une *belle grande salle carrée, embellie tout au tour de colonnes de marbre, avec leur bases, chapiteaux, architraves, frises et cornices gravees et taillees en demy bosse: l'entredeux des colonnes estoit reuestu de lastres, listeaux, ou plattes bandes de marbre de diuerses couleurs, ornees de moulures et sculptures conformes au reste de l'œuvre, et rapportés propremêt sur le fonds blâc de la muraille, où ne se voyait qu' histoires taillees, et toutes battailles à demy relief.* Ce qu'ayans admiré de prime face, et apres avoir estimé en leur fantasie la singularite de l'ouvrage, en fin ils *defirent, briserent, et rompirent*, pour s'en servir comme ils auoyent faicte du demeurant. Outre ceste sale ils treuuerent apres une porte fort basse, qui conduisoit à une autre, comme antichambre, ou il y avoit un sepulcre avec son vase et son tymbre de marbre blanc, fort beau et reluisant à merveilles, lequel, pour n'avoir pas eu assez de temps, ils ne descouurirent, la retraicte estant desia sonnee. Le lendemain, apres qu'ils y furent retournés, ils treuuerêt la tombe descouverte, et la terre semee autour de force petits morceaux de drap d'or, et paillette de mesme metal: qui leur fit penser, que les corsaires, qui escumoyent alors le long de toute ceste coste, ayans eu quelque vent de ce qui avoit esté decouuert en ce lieu là, y vindrent de nuit, et osterent le couuercle du sepulcre, et tient on qu'ils y treuuerent des grandes richesses et *thresors.*' *Ainsi* ce superbe sepulchre, apres avoir eschappé la fureur des Barbares, et demeuré l'espace de 2247 ans debout, du moins enseveli dedans les ruines de la ville d'Halycarnasse, fut decouuert et aboli pour remparer le chasteau de S. Pierre, par les cheualiers croisés de Rhodes, lesquels en furent incontinent apres chassés par le Turc, et de toute l'Asie quant et quant."

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[a] Attention was, I believe, first drawn to this remarkable memorial by Sir Charles Newton in the Article in the *Classical Museum*, already referred to. See *supra*, p. 279, note b.

Now it needs no argument to show that the remains which De la Tourette and his companions discovered, but whose origin and importance they evidently did not understand, were rightly described by Guichard as the remains of the Mausoleum. The upper part of the monument had been overthrown upwards of one hundred and twenty years before, probably by an earthquake, and such of its scattered fragments as still lay on the ground, and were useful either for masonry or the making of mortar, had been carried off to the castle or other places in Budrum by the parties mentioned in the passage from Fontanus already referred to, or by subsequent depredators. But the solid mass of the basement, being not so easily removable, was left by them untouched. Thus, by the time the Rhodian knights arrived, the chief indication of the ruined monument must have been a mound, covering merely its lower parts. Let us examine how they explored first the exterior, then the interior, of the building within this mound.

1. Their eyes were first struck by "certain steps of white marble, which rose

in the form of a *perron* (or outside staircase),"[a] cropping out from the ground. These steps they forthwith cleared away and applied to the repair of the castle. Then, finding the material good for their purpose, they dug on lower in hopes of more. The *perron* was soon observed to spread out laterally as it descended vertically. Four or five days they dug, and then apparently a large piece of the buried building disclosed itself (for this seems to be the meaning of *apres avoir fait une grande decouverte*), through which they perceived an opening into the interior, like an entrance into a cellar. Thereupon they descended inside (*devalerent dedans*) and beheld so-and-so; what it was will be considered presently. Now the thing to be chiefly noticed in this description of the exterior of the basement is the evident loftiness of the flight of steps or gradines which enclosed it. Besides the part which the knights first saw above ground, and which was high enough in itself to suggest the idea of a *perron* or staircase, the part buried, which by its continuous enlargement is shown to have been a continuous flight of steps, was also so high as to require four or five days' excavation to get down to the opening into the interior; and, when the opening was passed through, they had again to descend to reach the floor of the inner chamber. Manifestly, such a *perron* as this cannot be regarded merely as an ordinary graduated plinth at the base of an outer wall. It cannot be adequately represented by the five ground-steps of Mr. Pullan's podium, still less by Mr. Fergusson's, or Herr Petersen's, three. To an unbiassed reader nothing can be clearer than the conclusion which all these learned writers shrink from accepting, because, as Sir Charles Newton declares,[b] it is incompatible with his and Mr. Pullan's idea of the "circumference of the pteron," an idea which the two succeeding restorers in substance adopt, though with minor modifications of their own. In reality this *perron*, this flight of gradines, descending to a depth reached only after several days of digging, marks an architectural feature as characteristic and unmistakeable as any I have known to be identified in the narrative of any excavation whatever. A flight of such gradines, continued round the exterior of a quadrangular space, is a truncated pyramid. The height of the flight of gradines here described is evidently sufficient to have equalled the height of the pyramid over the Pteron. Here, then, manifestly is the *pyramis inferior*, mentioned constructively and indirectly by Pliny in the same sentence which describes, more explicitly and directly, the pyramid of equal height in the upper part. The misinterpretation of that sentence by my three immediate predecessors, in the way already pointed out, has led them into what I am obliged to characterise as a double practical error. First, they have, by assuming the quadriga to have surmounted the upper pyramid *as originally constructed*, been forced to interpolate a central space for a platform, which, besides its destroying all resemblance between the apex of the pyramid and that of a meta, carries the entire spread of the pyramid much beyond the area corresponding to twenty-four times the tread of the discovered steps, and, concurrently therewith, enlarges the plan of the Pteron to an equal extent. Secondly, as an inevitable consequence, they have found no space left outside the margin of the Pteron, and within the limits prescribed by the rock-cutting below, to admit of the introduction of a pyramid in the basement; and they have therefore cut the Gordian knot by deciding that, despite any words of Pliny's, or any facts of De la Tourette's, the lower pyramid could have had no existence, and all evidence to the contrary must be simply ignored. In my opinion, however, no theory of restoration can claim to be reconcileable with De la Tourette's account, which does not make the Mausoleum rise from a lofty graduated pyramidal basement; and none can claim to accord with Pliny's description, grammatically rendered according to the only authentic wording, which does not make that basement equal in height to the twenty-four-stepped pyramid over the Pteron.

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[a] Sir Charles Newton translates *perron* simply as a "terrace"; but in the *Dictionary of the Academy*, 1878, *Perron* is defined thus: "Construction exterieure, qui est formée de plusieurs marches, et d'une plateforme, et qui sert à établir une communication directe entre deux sols de differente hauteur."

[b] *A History of Discoveries at Halicarnassus, etc.*, ii. 192.

Thus much for the exterior of the building discovered by the knights. Let us next consider the account given of the interior.

Passing through the cellar-like opening which they had unexpectedly discovered, whether an originally and purposely constructed passage, or merely the chasm of an accidental collapse, does not appear from the account, the knights entered the principal chamber within. Of this De la Tourette gave a description to D'Alechamps, the particulars of which deserve our careful examination. The chamber, says the knight, was surrounded by columns, with their bases and capitals, their architraves, friezes, and cornices; and the *entredeux* or intercolumns were adorned with various coloured marbles. This last statement proves that the columns were not insulated, as Mr. Fergusson has made them,[a] but engaged in the wall, as indeed is further shown by the statement that their bases and capitals, as well as their entablatures, were carved in half-relief (*demy-bosse*). Which architectural order they belonged to De la Tourette does not say, perhaps was not learned enough to know; but clearly it was not the Doric, as he mentions bases, which the Greeks did not use in that order. The intercolumnar spaces or curtain walls were, as I understand the description, so arranged as to show panels seemingly sculptured in the white wall itself, with battle-scenes in half-relief; and the panels themselves were enclosed within borders of coloured marbles, veneered and moulded. No niches are mentioned, no statuary in the round, no altar, sarcophagi, or furniture.[a] All this is so definite, circumstantial, and exact, that a restorer of the Mausoleum would seem to have little to do as regards the interior, but to represent in diagram what Guichard has copied down in words. Not so, however, thought Mr. Pullan. He had made up his mind that the interior of the entire building could only have been designed on a scheme by which two exactly similar beehive-shaped chambers, like those of Mycenæ and Orchomenus, were piled one over the other, in the manner of the Nurhaghe of Sardinia[b] (see Fig. 7). As no single feature in a building so constructed would be consistent with De la Tourette's narrative, he boldly resolved to treat the whole of that narrative as unworthy of consideration. The only argument he thought it worth while to offer for this summary proceeding is to be found in the following words: "This description," meaning Guichard's, "may have been heightened by the excited imagination of the original narrator (De la Tourette), for the chamber could have been of no great size, or there would surely have been found some traces of this architectural magnificence,"[c] words in which he takes final leave of all the particulars of structure and ornamentation recorded in the knight's account, and proceeds to substitute his own preconceived idea of the interior. Now the description of "the original narrator" is comprised, as I read the paragraph, in the sentences extending from *les chevaliers*, etc. down to *thresors*. The preceding or introductory sentence, and, again, the sentence beginning with *Ainsi*, which contains the writer's final comment or moral upon the tale, are additions of Guichard's own. Throughout the entire paragraph I can detect but one statement which some might possibly attribute to what Mr. Pullan calls an "excited imagination," namely, that which assigns to the Mausoleum an antiquity of two thousand two hundred and forty-seven years, instead of about one thousand eight hundred and seventy-two, at the date of its destruction. But this, after all, is but the blundered chronology of Guichard, and in no way affects the testimony of De la Tourette as

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[a] *The Mausoleum at Halicarnassus restored, etc.*, Pls. I. and II.

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[a] Niches with statues are introduced by Herr Petersen (pp. 13, 15, Pl. I.) in his elevation of the exterior, which is founded, as will be presently seen, on Guichard's account of the inner chamber. An altar and sarcophagi are suggested for this chamber by Mr. Fergusson (p. 35).

[b] See Pullan's Essay in Newton's *A History of Discoveries at Halicarnassus, etc.*, ii. 184.

[c] *Ibid.* ii. 184.

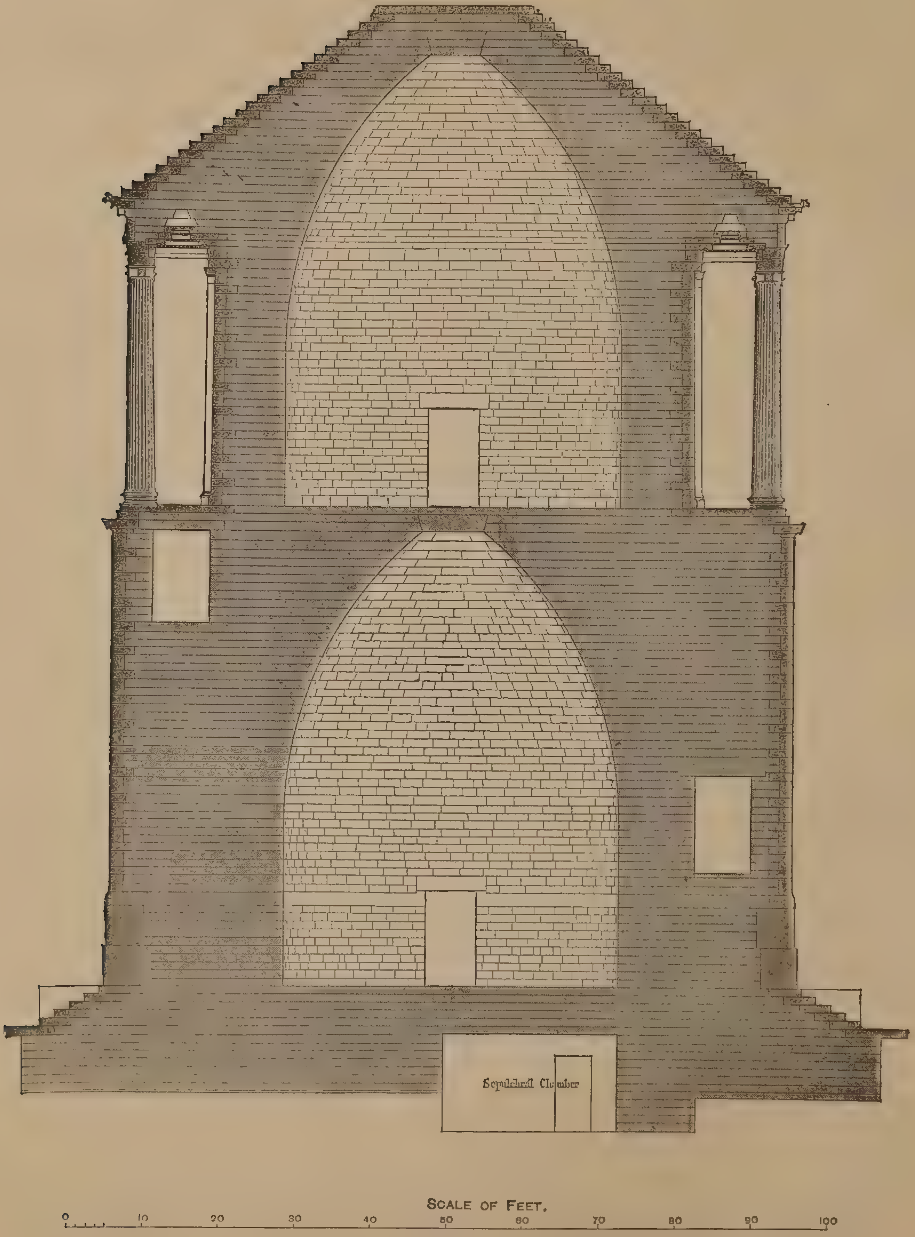

Fig. 7. Mr. Pullan's Transverse Section of the Mausoleum. (From Newton's *A History of Discoveries at Halicarnassus, etc.* vol. i. Pl. xx.)

to what he had actually seen. That testimony seems to me as *un*excited and *un*imaginative as it could well be; indeed, little more than a simple enumeration of matter-of-fact details. It contains throughout no laudatory epithet, except the two words describing the chamber as *belle* and *grande*, and to contend that the latter adjective implies necessarily such "great size" as to justify the rejection of the whole account as the product of an "excited imagination" can surely not be the note of candid or sensible criticism. As for the argument that no "traces were found of such architectural magnificence," it is disposed of by the narrative itself. For, with a frankness which, in proportion as it discredits his character as a man of culture, enhances his credibility as a witness, the knight tells us that he and his comrades, after examining and admiring the singularity of the work, *defirent, briserent, et rompirent*, "pulled to pieces, smashed, and broke up," the whole, "to use it as they had already used the remainder," that is, to obtain either blocks for building, or lime for mortar. By a singular fate, indeed, that part of the Mausoleum which was first overthrown met with a more honourable fortune in the end than that which had stood unshaken for two or three hundred years longer. The quadriga, the upper pyramid, and the Pteron, having been broken up by the earthquake and strewn piecemeal over the surrounding land, their still unappropriated fragments were doubtless covered with earth, vegetation, or rubbish, at the time of the knights' arrival, and were thus happily preserved from their spoliation or violence, to become in a later age objects of admiration and study in our national Museum. But the chamber in the basement, which the knights of St. John found intact, presented on its walls, all ready to hand, the very thing they were in quest of; they therefore, with no difficulty and seemingly with as little scruple, carried off or destroyed the whole. The account preserved by Guichard contains the only record in ancient or medieval literature of the internal arrangement and decoration of any part of the Mausoleum. It is a strong confirmation of its truthfulness that all the details mentioned are in perfect accord with what we know of Greek art and Greek taste; for how could a rude soldier like De la Tourette have known how to draw so consistent a picture of an ancient architectural interior unless he had actually seen all that he describes? If we are at liberty to set at nought that description on no better grounds than Mr. Pullan's, we may as well abandon at once any attempt at a restoration according to evidence. It is due to Sir Charles Newton to mention that, in the chapter he devotes to the advocacy of his fellow explorer's architectural scheme, he makes no attempt on his own part to disparage the credibility of De la Tourette's narrative. On the contrary, he frankly admits not merely its manifest accuracy as a whole, but, in particular, points out that the description of the relics in the sepulchral room adjoining the principal chamber so fully agrees with the discoveries made in other Greek tombs, such, for example, as those at Panticapæum,[a] as to "furnish incidental proof of the truthfulness of the knight's account generally."[b] It is therefore to be regretted that, by adopting Mr. Pullan's scheme of restoration as his own without any reservation, he has indirectly made himself responsible for the trivial and shallow reasoning on which exclusively Mr. Pullan founds his rejection of that arrangement of the interior which alone has historical authority, and his substitution of an arrangement which has no authority but his own imagination.

Herr Petersen's treatment of De la Tourette's account of the interior is not open to similar criticism. He loyally accepts the description, with its architectural details, as authority beyond cavil. But his interpretation of it is of a kind which can only be characterised as non-natural. By a process of reasoning I am at a loss to understand he has persuaded himself that, when the knight tells us that the chamber into which he and his comrades penetrated with so much labour was adorned all round (*embellie tout au tour*) with columns and wall decorations, he is referring not to the interior of the building, which was then before their eyes, but to the exterior, which they no longer saw, and of which the knight had already given a quite different account.[c] He has accordingly designed an elevation for the east and west fronts of the Mausoleum, as seen from without, in which the architectural features of the chamber described by De la Tourette, or what he intends for those features, though most inaccurately reproduced, are worked in as embellishments of the external walls of the lower story. Those walls form the outer side, as the walls of the chamber form the inner side, of the mass of masonry, 28 feet thick in Petersen's plan,[d] which enclosed the chamber itself; a mass which, with its several wall-surfaces, he turns literally inside out, and seems to think he is thereby satisfying the requirements of the knight's description. I have thought it only due to Herr Petersen to state his theory of the basement, as professedly drawn from Guichard's account; but I trust I may be excused from offering any serious criticism upon it. How an interior such as that described by De la Tourette was really combined with an exterior of the form and dimensions recorded by Pliny and the other writers already quoted, will be considered under a later head.

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[a] See *Antiquités du Bosphore Cimmerien*, fol. i. pp. 19, 27.

[b] *A History of Discoveries at Halicarnassus, etc.*, ii. 79; and cf. p. 261.

[c] The following quotations from Herr Petersen show what is his understanding of the knight's description. "Er (i.e. De la Tourette) die *aüssere* umgebung mit einsicht beschreibt, und vom *innern* gar nichts sagt" (p. 7). "Dass aber der unterbau *aussen* mit halbsäulen, architrav, fries, und gesims geschmückt und in den intercolumnien eingerahmte reliefs angebracht waren, bezeugt der bericht vom abbruch des gebäudes aus dem jahr 1522" (p. 13). "Die beschreibung des von säulen u. s. w. umgebenen saales können also nur auf den unterbau und das autour dem sprachgebrauch gemäss nur auf die *aussenseite* desselben gehen" (p. 14).

[d] See Petersen's ground plan.

B. Evidence of Monuments.

From ancient literature, with its sixteenth century sequel, we now pass to the remains of ancient monuments, and search for any light they may throw on the architecture of the Mausoleum. Here a certain discrimination must be carefully made. We are not now dealing with the question, what was the general form of Greek tombs, nor how was their architecture adapted to their special uses, nor what classes of sculpture were thought most fit for their adornment, nor any other such wide-reaching inquiry. If we were, any sepulchral monument, of whatever date in the history of Greece, might be more or less useful for our guidance. But the problem before us is of more limited scope. We are concerned merely to discover what were the special structural features of a particular historical building, which so distinguished it from other buildings of an analogous class as to make it worthy, in the opinion of the ancients, to rank among the Seven Wonders of the World. True it is, Vitruvius and Pliny both tell us that this honourable distinction was mainly due to the excellence of its sculptures. But the *consensus* of all ancient testimony attributes to the Mausoleum a no less marked pre-eminence in architectural beauty. The words of Martial already quoted can refer only to the construction of the building; and it must have been from its construction alone that its name became for ever after a synonym for whatever was most magnificent in sepulchral architecture. Satyrus and Phyteus, its designers, obtained, no less than the sculptors who decorated its sides, an imperishable name in the history of art; and they found in their work sufficient subject-matter for an explanatory or critical treatise. It can hardly therefore be doubted that the architectural design of the Mausoleum must have had some notable individuality, some exceptional elegance of form or ingenuity of composition, which, no less than its size and rich ornamentation, distinguished the building from the ordinary type of tombs to which the Greeks were accustomed in the middle of the fourth century. To what still extant monuments then can we most safely turn, as likely to furnish a clue to the nature of this structural distinction, whatever it may have been? Clearly, only to those which follow the Mausoleum in date, and which may reasonably be presumed to have been imitated from, or in some way influenced by it. Monuments anterior even by a single year would for this purpose be useless or misleading. They might illustrate collateral points connected with the building, but not the special point into which we are now inquiring. Let us take an illustration of the argument from a kindred art. Suppose the question were, what was the attitude of the statue of Aphrodite at Cnidus, which distinguished it from all other representations of the goddess, and was felt at once by contemporaries to realise the true sentiment of its subject. To no purpose should we seek that attitude amongst sculptures of any earlier date than Praxiteles; for no mere improvement, however skilful, upon pre-existing types would have sufficed to secure for that sculptor's work its unanimous acceptance as the proper ideal of the lovely divinity. But every figure of Aphrodite, in statuary, coin, or gem, known to be of later date, if at all corresponding with Lucian's and other well-known descriptions, would be of importance, for it might not improbably have been copied, directly or indirectly, from the then recognised model. And it would matter little, though the supposed copy were of a much later age (like the Aphrodite on the coins of Cnidus struck in the time of Plautilla) or of any degree of inferiority in workmanship. Just so with the Mausoleum. A building whose unique architectural merit excited the wonder and admiration of all antiquity cannot be believed to have been a mere product evolved from preceding types, a copy or modification of earlier works. In seeking therefore for probable clues to the design of the Mausoleum amongst other known sepulchral monuments, I shall studiously eliminate all those which there is good reason to think anterior to B.C. 353, the supposed year of Mausolus' death.

Now the monuments which have been chiefly referred to by modern writers, as more or less throwing light on the question of the form of the building, are in all, I believe, fourteen. Some of them are cited by Mr. Falkener, some by Sir Charles Newton, and some by Mr. Fergusson. Amongst these, however, are included, besides an example of the Nurhaghe of Sardinia,[a] which does not call for any notice here, two buildings which, however interesting and instructive in other points of view, cannot, under the chronological limitation here laid down, be admitted as carrying authority in the present inquiry without a previous determination of the period to which each of them really belongs. Let us therefore examine carefully the evidence in each case bearing on the question of date.

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[a] Taken from Della Marmora, *Voyage en Sardaigne*, and included in the collection of monuments published in Newton, *A History of Discoveries at Halicarnassus, etc.*, i. Pl. XXXI.

1. The first of these, which is included in Mr. Fergusson's list of so-called *Exempla*,[a] is the "Lion Tomb" near Cnidus. This was originally brought to notice (though not with any reference to the problem of the Mausoleum) by the discoveries of Sir Charles Newton and Mr. Pullan, from whose work Mr. Fergusson has taken a reduced wood-cut illustration of it. This monument has certainly two features in common with the Mausoleum, as described by Pliny, a pyramidal roof and a colossal piece of sculpture on the top. The pyramidal form, however, had been from early times and in various countries associated with important sepulchres; so that it would of itself furnish no proof that this tomb was copied specially from the Mausoleum. The lion also on the summit is merely the habitual symbol of valour, such as was placed upon the funeral mounds of warriors slain in battle, even though defeated, as at Chæronea; and it cannot fairly be held to have been first suggested by the quadriga which crowned the Mausoleum. These features therefore supply no artistic reason for considering the monument posterior to B.C. 353. Nor is there any historical reason for attributing it to a later date. On the contrary, Sir Charles Newton, who examined and described this sepulchre with much care, is of opinion that it was a *polyandrion* belonging to a period not later than the first half of the fourth century. He suggests that it might have been erected for those Cnidians who fell in repulsing an attack of the Athenian fleet in B.C. 412, or for some of the combatants in the great naval battle which took place near Cnidus, B.C. 394, when the Lacedæmonians were defeated by Conon. In the latter alternative, as I would venture further to suggest, the sepulchre might probably have covered the remains of Pisander and his comrades, who fell sword in hand when their ship was driven on shore. Whichever of these two dates, however, we adopt, and I know of no historical objection to either, we must equally treat the Lion Tomb, in spite of Mr. Fergusson's authority, as outside the range of monuments bearing on our present inquiry.

2. The second monument, which is also included in Mr. Fergusson's list of *Exempla*,[b] requires a fuller investigation. It is the Ionic building which formerly stood at Xanthus, and of which the most important remains are now in the British Museum. It has been named by Mr. Watkiss Lloyd the "Nereid Monument," from the statues which are supposed to have occupied its intercolumns, and has been variously described as a trophy, heröon, or tomb. Nothing but the

[a] *Mausoleum, etc.*, 14.

[b] *Mausoleum, etc.*, 16.

high authority of Sir Charles Newton, who assigns it to the *latter* half of the fourth century, B.C., though without giving any reasons for his opinion, would have led me to hesitate in pronouncing it anterior to the Mausoleum.[a] So far as I know, no other archæologist of note, with one rather doubtful exception, has held Sir C. Newton's view. The exception is the late learned Ed. Gerhard of Berlin, who, writing in 1844, immediately after the acquisition of the remains by the Museum, attributed them to "a period a little anterior to Alexander the Great."[b] Whether by this phrase he meant to convey a definitive opinion that the Xanthian monument was built within twelve or fourteen years before the accession of Alexander in B.C. 336, and therefore after the supposed erection of the Mausoleum, may be doubtful. But even if he did, considering that he had never himself seen any of the Mausoleum sculptures, the first series of which was only brought to Europe in 1846, his judgment on the chronological precedence of the two monuments would hardly be entitled to its usual weight. The theories of other writers on the age of the Xanthian building have been founded principally on the interpretations given to the historical scenes represented on the two friezes of its basement.

These theories may be ranged in three classes:

(A) Those which explain the scenes, as the capture of Xanthus by Harpagus, the general of Cyrus, with the aid of Ionian and Æolian troops, *circa* B.C. 546. Sir Charles Fellows, who excavated and brought over the remains of the monument from Lycia, first suggested this interpretation, believing the sculptures to have been executed in the generation following the event commemorated; at any rate, not later than B.C. 500.[c] Mr. B. Gibson, brother to the eminent sculptor, concurred in this view,[d] as did also Mr. Falkener, who measured, drew, and described the architectural fragments with the advantage of professional experience.[e] Mr. Watkiss Lloyd, in an ingenious essay on the history and religious motive of the building, considered it to have been erected shortly after the battle of Eurymedon, B.C, 466, as an *agalma*, or offering to certain deities, in acknowledgment of the recovered prosperity of Xanthus after its devastation by Harpagus.[a] Dr. Birch accepted Sir Charles Fellows' interpretation of the friezes, but thought, from their artistic style, that they must have been subsequent to and perhaps imitated from those of the Theseum and of the Temple of Wingless Victory at Athens.[b] Mr. Murray, in his valuable *History of Greek Sculpture*, takes a similar view. He traces in the lower frieze of the basement the pictorial influence of Polygnotus, and likens it in this respect to the Phigaleian sculptures, which date from *circa* B.C. 429. He also compares both the upper and lower friezes to the two which formerly adorned the *peribolus* wall of another Lycian tomb, found in 1881 at a place called Gjölbaschi, friezes which are now at Vienna, and are uniformly referred to the latter half of the fifth century.[c] The resemblance indeed between these two groups of sculpture, both in subject, artistic treatment, and details of military architecture and costume, is singularly close. Colonel Leake, in a letter to Mr. W. R. Hamilton, without disputing the reference of the friezes to Harpagus, thought their style belonged to the end of the fifth or beginning of the fourth century;[d] and Sir Edmund Head, who quotes this letter in an article in the *Classical Museum*,[e] considers them at least a century, and perhaps a century and a half, later than the event they were believed to represent.

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[a] "The Ionic monument at Xanthus was probably erected between B.C. 350 and 300. Its design, when compared with that of the Mausoleum, exhibits a general inferiority both in the sculpture and architecture, with such similarity in certain features as might be expected if, as I suppose, the work of Satyrus and Phyteus was rather earlier in date, for so celebrated a monument could hardly fail to affect the character of sepulchral architecture not only in the immediate neighbourhood of Halicarnassus, but in the adjacent provinces." *A History of Discoveries at Halicarnassus, etc.*, ii. 204.

[b] "Im zeitalter kurz vor Alexander," *Archæologische Zeitung*, Oct. and Nov. 1844, p. 356.

[c] Fellows' *Ionic Trophy Monument*, 12.

[d] *Museum of Classical Antiquities*, i. 154.

[e] *Ibid.* 280.

(B) The theory of Welcker.[f] This is founded on the apparent incompatibility of one of the scenes included in the upper frieze of the basement, which represents the negotiation for the surrender of the beleaguered city, with the tragic incident described by Herodotus as attending the capture of Xanthus.[g] As a more probable interpretation, Welcker suggests that the monument might have been a memorial of some victory gained by the Persian commissary at Xanthus, with the aid of Greek auxiliaries, over some Cilician city which joined in the revolt against Artaxerxes, B.C. 387; and as Evagoras of Cyprus, who had stirred up this revolt, was defeated in a naval battle by the Persians, Welcker thinks the statues of Nereids might have been intended to symbolise the connection of the victory at sea with the victory on land. Whether or not this theory be tenable on historical grounds, it is hardly consistent with the opinion expressed by its author himself on a preceding page as to the artistic quality of the reliefs he is interpreting, which is in the following words: "the masterly friezes of the building point rather to the time of the Phigaleian sculptures."[a]

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[a] *Xanthian Marbles. Nereid Monument*, 15.

[b] *Archaeologia*, xxx. 196.

[c] ii. 204, *seq.*

[d] *Transactions of the Royal Society of Literature*, 2nd Ser. i. 260.

[e] i. 227.

[f] *Alte Denkmäler*, v. p. 247. cf. Welcker's Notes to Müller's *Ancient Art* (English ed.), 104-5.

[g] *Lib.* i. *c.* 176.

(C) The explanation of Urlichs, who, finding among the fragments of Theopompus, the Chian historian, a passage from the twelfth book of the *Philippics*, which seemed exactly illustrated by the incidents of the upper frieze,[b] suggested that the city there represented was Telmessus, which was besieged and taken, according to his calculation, in or about B.C. 375, by Pericles, dynast of Lycia.[c] The objection that Telmessus was a maritime town on the Glaucus Gulf, whilst no semblance of sea or coast is traceable in the sculptures, was met by the hypothesis that the town was taken by operations limited to the land side, and that the proximity of the sea was meant to be suggested by the statues of Nereids. This interpretation has been adopted by Overbeck,[d] Lübke,[e] Michaelis,[f] and Furtwängler,[g] as well as by Mr. Walter Perry,[h] and by M. Maxime Collignon.[i] But whilst concurring in Urlichs' explanation of the bas-reliefs, Furtwängler and Collignon dissent from the date he assigns to the event they represent. Dr. Furtwängler points out that Theopompus's account of the capture of Telmessus does not form part of a continuous history of the period covered by the twelfth book of the *Philippics* (in which case its date might have been approximately inferred from its relative position in the narrative), but occurs in a separate "episode," describing an event which had taken place at some previous time which the historian does not specify. Assuming, with Urlichs, that the achievement of Pericles is the event commemorated in the sculptures, there is still, as Furtwängler contends, no authority for limiting Pericles' reign to B.C. 375-370, or any similar period. There are, indeed, historical reasons mentioned by Furtwängler for not carrying back that reign further than B.C. 425; but at any later date than this it might have begun, and the capture of Telmessus might therefore have occurred; so that the question between the last quarter of the fifth century, and the first quarter of the fourth, is in fact to be decided by artistic evidence alone. Dr. Furtwängler is of opinion (1) that the style of composition in the Xanthian friezes is, as Mr. Murray also thinks, derived from the wall-paintings which so greatly influenced Attic and Ionic art in the latter half of the fifth century; (2) that in parts their treatment resembles the Panathenaic frieze of the Parthenon, in other parts is almost a reproduction of the reliefs of the Temple of Wingless Victory; (3) that the Nereid figures approach most nearly in design, though inferior in execution, to the Victory of Pæonius, dating from *circa* B.C. 440, and to the lately discovered group from the temple in Delos, *circa* 425; and (4) that, as Professor Michaelis also has remarked, the true prototype of the archaistic statues of lions supposed to have stood within the portico is to be found in the terra-cottas from Melos now in the British Museum. On these grounds, mainly, he arrives at the conclusion that the monument belongs to one of the last two decades of the fifth century. In this conclusion, generally, M. Collignon concurs, though with some modification as to the artistic character of the sculpture, which he regards, in common with Lubke and Michaelis, as a hybrid product of Attic and Lycian art; an opinion which no intelligent observer of the almost Assyrian realism shown in the scenes of the siege can feel to be unfounded. Lubke, however, adopted the later date of Urlichs, relying mainly on supposed architectural analogies, particularly in the capitals of the Ionic columns, which he, as well as Michaelis, thought imitated from those of the Erechtheum. I confess myself unable to trace this imitation; but assuming it to be real, it would not carry the Xanthian monument much later than B.C. 409-8.

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[a] Notes to *Ancient Art*, 103.

[b] *Λύκιοι προς Τελμισσεῖς, ἡγουμένου αὐτοῖς τοῦ σφῶν βασιλέως Περικλέους, ἐπολέμησαν, καὶ οὐκ ἀνῆκαν πολεμοῦντες ἕως αὐτους τειχήρεις ποιήσαντες καθ' ὁμολογίαν παρεστήσαντο. Fragmenta Historicorum Græcorum*, Didot, 1841, i. 296.

[c] *Verhandlung d. XIX. Philologen Versammlung* (in Braunschweig, Sept. 1860), 62, *seq.*

[d] *Gr. Plastik*, 3rd. ed. ii. 158.

[e] *Hist. Sculpt.* (English Ed.), i. 207.

[f] *Ann. dell' Ist. Arch.*, 1875, p. 173.

[g] *Archæologische Zeitung*, 1882, p. 358.

[h] *Greek and Roman Sculpture*, 506.

[i] *Gazette des Beaux Arts*, tom. xxxv. Feb. 1887.

Between the several theories here set forth I purposely abstain from attempting to adjudicate. The importance and interest of the Xanthian monument, both in an historical and artistic sense, have led me to state those theories with considerable, it may perhaps be thought unnecessary, fullness. To discuss their relative claims, however, and weigh them in the balance with opinions and arguments of my own, would not merely prolong the discussion inconveniently, but would be, strictly speaking, irrelevant to the present inquiry. For, widely as the epochs advocated by the several writers vary, ranging from the end of the sixth to the beginning of the fourth century, all of those writers agree on the only point which affects the question before us, namely, in pronouncing the building older than the Mausoleum. I shall therefore, without further hesitation, reject from consideration any attempt to treat the architectural features of the Xanthian monument as offering a clue to the special characteristics, whatever they were, of the masterpiece of Satyrus and Phyteus.

Having thus put aside on chronological grounds two of the principal monuments in Mr. Fergusson's list, I need only deal with the remainder as they occur also in the lists of Mr. Falkener and Sir Charles Newton. The latter includes a monument on the date of which it will be proper here to submit a few words, namely, the so-called tomb of Theron.[a] If this designation of that building be correct, it may be at once excluded from the present discussion; for Theron the Tyrant died in B.C. 472. It is known from Diodorus that he was buried in a tomb of magnificent dimensions in the outskirts of Agrigentum. When the Carthaginian general Hannibal was beseiging that city in B.C. 406, he ordered the destruction of all the large monuments outside its walls, to facilitate his attack. Under this sentence Theron's tomb was actually in course of demolition, when it was struck and shattered by lightning, whilst at the same time a pestilence broke out in the besieging army, which carried off Hannibal himself. These calamities, being interpreted as divine judgments upon the sacrilege committed, put a stop to the Carthaginian devastation, and thus saved whatever still remained of the tomb of Theron.[b] Wilkins, who published fully the monument copied in Sir Charles Newton's plate, which now stands in nearly perfect condition near the modern Girgenti (though without the pyramid on the top which Wilkins represents, and which is merely a conjectural restoration), believed that it was the same to which Diodorus refers.[c] This, however, is not the opinion of later archaeologists. The small scale of the monument, barely 29 feet high, and 17 feet square in plan, with the absence of any signs either of injury from lightning or of partial demolition, is inconsistent with the language of Diodorus; whilst the barbarous intermixture of Doric and Ionic details in the engaged columnar ordinance makes it hardly possible to refer such a work to the best age of Greek architecture.[d] Canina accordingly treats the association of the tomb with Theron as unworthy even of discussion.[e] The same view is taken by the Duke of Serradifalco, who attributes the building, which he regards as only a cenotaph, to the Graeco-Roman period.[a] Agreeing as I do with these latter judgments, I shall, in the list of possible imitations of the Mausoleum, admit this monument, as subject to no objection on chronological grounds. Nor do I on the same grounds demur to any other of the monuments included in Sir Charles Newton's plate, except of course the Sardinian Nurhage; and these I presume he did not himself intend to represent as derivatives from the Mausoleum.

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[a] See Canina, *Architettura Greca*, Pl. clvii. from which Sir C. Newton has taken his illustration.

[b] *'Ενέπεσεν εἰς το στρατόπεδον πολλὴ δεισιδαιμονία. Τὸν γὰρ τοῦ Θήρωνος τάφον ὄντα καθ' ὑπερβολὴν μέγαν συνέβαινεν ὑπὸ κεραυνοῦ διασεσεῖσθαι. Διόπερ αὐτοῦ καθαιρουμένου, τῶν τε μαντέων τινες προνοήσαντες διεκώλυσαν, εὐθὺς δὲ καὶ λοιμὸς ἐνέπεσεν εἰς τὸ στρατόπεδον.* *Diodorus Siculus*, lib. xiii. c. 86.

[c] *The Antiquities of Magna Græcia*, 36.

[d] The so-called "Tomb of Absolom" at Jerusalem, the date of which is equally uncertain with that of the "Tomb of Theron," exhibits exactly the same solecism, just as if one were a copy of the other. See Williams, *Holy City*, ii. 157, Pl. v.

[e] v. 565.

There remain then in all eleven examples of sepulchral architecture described or delineated by Mr. Falkener, Sir Charles Newton, and Mr. Fergusson, to the admissibility of which for the present purpose I make no objection on chronological grounds. Those examples are still existing at the following places: 1. Souma, in Algeria. 2. Ooran, in Phrygia. 3. Celenderis, in Cilicia. 4. Mylassa, in Caria. 5. Girgenti, in Sicily. 6. St. Remy, in Provence. 7, 8, 9. The Regio Tripolitana of Africa. 10. Jerusalem. 11. Dugga, near Tunis. But these monuments vary much from each other in design. How many and which of them then can be accepted as reproductions, imitations, or modifications, of the great Halicarnassian exemplar? To entitle any to this claim they should, in my opinion, conform to the following conditions:

1. They should, if more than one, have some characteristic and distinctive feature in common.
2. That feature should not be found in any sepulchral monument earlier than B.C. 353.
3. The feature referred to should have nothing in it incompatible with the descriptions of the Mausoleum by ancient writers.
4. The same feature should show some peculiar and quasi-typical form of design, which, when adapted, as it originally was, to a larger building, and worked out in a purer style, might naturally have given to that building high celebrity as an architectural masterpiece.

Now, Sir Charles Newton points out that most of the monuments in his plate of illustrations, meaning evidently those at Mylassa, Girgenti, St. Remy,[b] and two of those in the Tripolitan Region, have not merely one, but three features in common, namely (as he says), "a lofty basement, a pteron, and a pyramid." All these therefore comply, even to superfluity, with our first condition. Even the remaining Tripolitan monument, as well as the monument at Dugga, and the so-called "Tomb of Zecharias" at Jerusalem, comply sufficiently with the same condition; for though each wants either the "lofty basement" or the "pyramid," they all have the common feature of a "pteron."[a] But this feature, in the Agrigentine and Tripolitan buildings, as also in those at Jerusalem and Dugga, fails to comply with either of the other three conditions. For a solid pteron, with columns engaged on each face, which is the characteristic of each of these buildings, violates, firstly, the second condition, being found in the Lion Tomb at Cnidus, which has been already shown to be older than B.C. 353; secondly, it violates the third condition, being in itself quite incompatible with that openness of structure and permeability to air which is involved in any reasonable interpretation of Martial's words; and thirdly, it violates the fourth condition, since it contains, so far as I can see, no typical element of beauty or originality, which, to whatever larger scale adapted, or with whatever superior skill wrought out, could have accounted for the world-wide celebrity of the original model. It follows that in none of these buildings, at Girgenti, in the Tripolitan Region, at Jerusalem, or at Dugga, is the feature we are seeking to be found.

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[a] *Antichità della Sicilia*, iii. 70, tav. 28-31.

[b] Strictly speaking, the St. Remy monument is not surmounted by a pyramid, but a cone; but this is so slight a difference that the building may still be taken as comprised in the same class as the others.

There remain, however, in our previously reduced list of eleven, five other monuments, those at Mylassa, Souma, Ooran, Celenderis, and St. Remy. Of these the first three possess alike one characteristic feature which, in my opinion, adequately satisfies all the required conditions. The two others fail in one essential quality of the same feature, but nevertheless approach so nearly in general character to it, that it is right not altogether to exclude them from our consideration. Let us describe them all in succession.

1. The most important of all known examples is that at Mylassa.[b] This town was long the capital of Caria; and though Mausolus transferred the seat of government to Halicarnassus, Mylassa continued to flourish in the time of Augustus, to whom, in conjunction with Roma, it built and dedicated a temple. Its distance from Halicarnassus was inconsiderable, and as the two most important cities in Caria, intercourse between them, so long as they were both prosperous, must have been constant. It cannot, therefore, be doubted that the designer of the monument at Mylassa must have been familiar with the celebrated

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[a] The three monuments from the Tripolitan Region are represented in Sir C. Newton's plate as given in Barth's *Travels in North and Central Africa*, i. 35, 117, 124. The Dugga monument is there reproduced from the *Transactions of the American Ethnological Society*, 1845, i. 477, Pl. IX. X.; and the "Tomb of Zecharias," from De Saulcy's *Voyage autour de la Mer Morte*, Atlas, Pl. XLI.

[b] Published by the Dilettanti Society, *Ionian Antiquities*, part ii. Pl. xxiv. The best description of this monument is to be found in Choiseul-Gouffier (*Voyage Pittor. de la Grece*, i. 144, 161), who says that he purposely illustrates it with the greater fullness because it recalls, though in a later age and in a changed architectural style, the "taste and form" of the Mausoleum.

building which was the pride of Halicarnassus and of the whole Carian people; and to it he would naturally look as the highest model of sepulchral architecture. Consequently, in the Mylassa monument, more than any other we know, we may reasonably expect to find at least a partial reproduction, less pure, perhaps, in style, and far less imposing in scale, but still a traceable reproduction, of the distinctive and characteristic feature, whatever that may have been, which had obtained for the Mausoleum its extraordinary renown. What we actually find at Mylassa, in the present dilapidated state of the building (Fig. 8), is this:

(1.) A square basement or podium, rising from a rather fantastically moulded plinth, and with a door on one of its sides, irregularly and rather awkwardly placed. (2.) Then a pteron formed of an entirely open quadrangular space,[a] surrounded by a cincture of pilasters and columns, the pilasters being at the four angles, the columns between them, two on each side, supporting a shallow entablature. (3.) Above this the remains of a pyramid of peculiar and ingenious construction, to which, I believe, no parallel is to be found in any other monument of Greek or Roman origin still surviving. The shafts of the columns are of abnormal composition, quasi-elliptic in plan, and fluted only in their upper parts; the frieze is pulvinated, and there is no cornice; whilst the florid and rather *baroque* ornamentation sufficiently proves the whole work to belong to a late, even a debased, period. But this in no wise affects the probability that the most striking and distinctive feature of the monument, its light and transpicuous pteron, "pervious to winds, and open every way," would have been imitated from, and therefore would give a clue to, the most striking and distinctive feature of the Mausoleum.

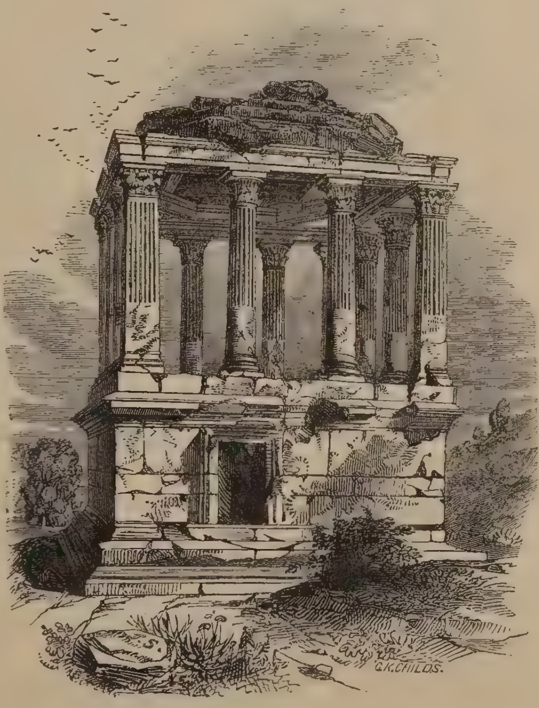

Fig. 8. Tomb at Mylassa. (From Fergusson's *Handbook of Architecture*, i. 353.)

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[a] Chandler asserts (*Travels in Asia Minor*, 189) that "the sides, which are now open, were

2. The next example has no claim to authority on the score of locality, but is here cited for its structure alone. It is situated at a spot called Souma, about nine miles from the ancient Cirta in Numidia, now better known under its later name of Constantina, in Algeria. It was first published, as theoretically restored by M. Ravoisier, in the *Exploration Scientifique de l'Algerie*, in 1846; and from the geometrical elevation there engraved Mr. Falkener drew the perspective view published in his journal,[a] and of which a copy is given in Fig. 9. This building, in Mr. Falkener's opinion, is the tomb of Micipsa, king of Numidia, who died B.C. 118. It is known from Strabo that Micipsa greatly enlarged and adorned Cirta, and established a Greek colony there.[b] Whether or not the Souma monument really covered the remains of the king, and whether or not its artistic character was due to the new settlers, it is certain that, if the restoration be authentic, it displays a propriety and purity of design not unworthy of the best age of Greece; and if its form was really suggested by the Mausoleum, the adaptation of the original idea shows both taste and skill. Its principal parts are: (1.) A bold spreading basement, of which the middle division consists of three gradines, contracting inwards as they rise, so as to form the lower part of a truncated pyramid; (2.) A podium, with doors, real or false, on each side, within which was doubtless the sepulchral chamber; (3.) A square open pteron, formed by a cincture of eight columns, so arranged as to present on each front a tristyle façade of the Doric order, surmounted by a low pediment. There is no pyramid above, but the combined pediments form a quadripartite canopy or baldaquin over the pteron. In this pteron then we have the

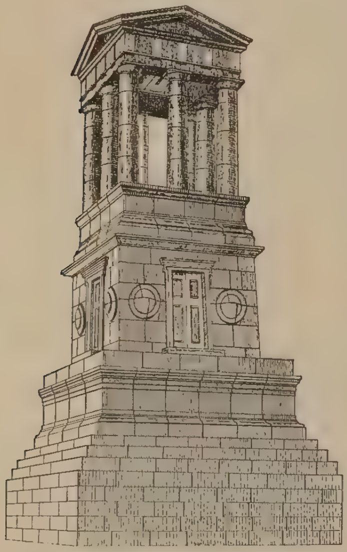

Fig. 9. Monument at Souma in Algeria, as restored by M. Ravoisiér.

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closed with marble panels." But Choiseul-Gouffier denies that there are any indications of panels or screens between the columns. Chandler's belief was founded on the vertical bands to be seen running down the middle of the shafts on each side, which implied, in his opinion, that the columns were connected by intervening panels. Such panels, however, must at any rate have been limited to the lowest part of the intercolumnar space, like *plutei*, or modern parapets; for the perspective view of the monument, both in the Dilettanti Society's publication and in Choiseul-Gouffier's, sufficiently shows that the upper or fluted part of the shafts was disengaged and free all round.

[a] *Museum of Classical Antiquities*, i. 173.

[b] *Rerum Geographicarum lib.* xvii. c. 3, § 13.

same distinctive and typical feature as at Mylassa, conforming adequately to all the four conditions here laid down.

3. The third monument is stated by Mr. Falkener to have been discovered by him at a place called Ooran in Phrygia, not far from the remains of Laodicea ad Lycum.[a] Though this is much further than Mylassa from Halicarnassus, it is still near the confines of Caria, and quite within the region of Asiatic Greek art. The architect of the building, therefore, would probably have been well acquainted with the Mausoleum. There is no proof beyond its general form that the monument was sepulchral, nor any direct evidence to determine its date, for the inscriptions represented in Mr. Falkener's plate are imaginary decorations; but the architectural design, if correctly restored by him, exhibits by no means a debased style. Judging from the basreliefs roughly outlined in the accompanying illustration (Fig. 10),[b] I should be inclined to attribute it to the age of the Seleucidæ.

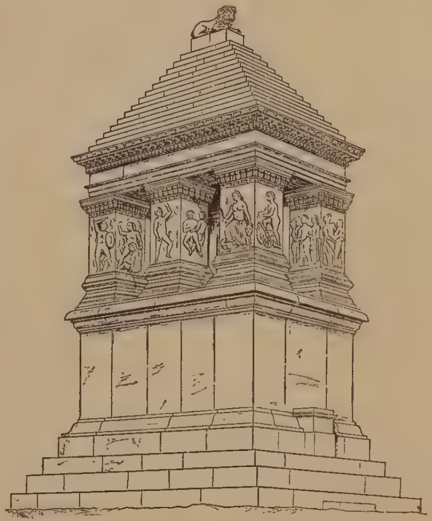

Fig. 10. Monument at Ooran in Phrygia, as restored by Mr. Falkener.

Unfortunately the roof and pyramid had been lost, and the basement was buried in the earth, at the time of Mr. Falkener's visit in 1844; so that his restoration, though appropriate and tasteful, must be admitted, as a whole, to be conjectural. The pteron, however, which, in our point of view, is the most important feature, was happily still standing. It is, like the two preceding examples, open and permeable both to air and view. But it is oblong in plan, instead of square; and its area is surrounded not by columns, as at Souma, nor by columns and pilasters jointly, as at Mylassa, but by six square and massive piers. The reason of this doubtless was that the weight of the pyramid they were designed to carry was greater than that of the superstructures in the other two buildings. The artist has availed himself of the exceptional thickness of the piers to sculpture the faces both of their fronts and returns with basreliefs; so that they may be called, by analogy with the columns in the Ephesian temple of Artemis, *parastaticæ cælatæ.* This form of decoration is, as far as I know, unique. But what alone for the present concerns us is, that we have here again, under a different form, the same open, transpicuous pteron as in the two preceding monuments, found in substantial accordance with all the four required conditions.

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[a] *Museum of Classical Antiquities*, i. 174.

[b] This illustration, which is copied from Mr. Falkener's, shows only the essential parts of his design, and the basreliefs are very inadequately rendered.

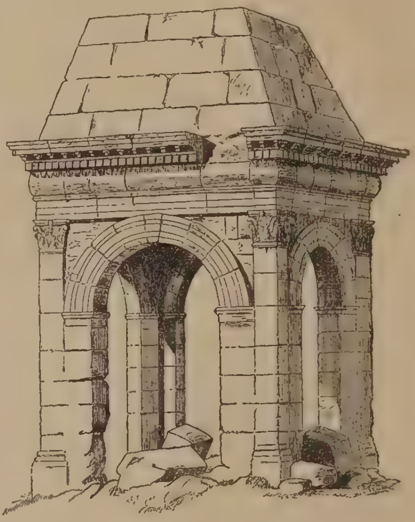

Fig. 11. Monument at Celenderis in Cilicia.

4. It remains to describe the two buildings which I have placed last in the list of five, the derivation of which from the Mausoleum seems open to more doubt than that of the first three, from their less strictly fulfilling all the conditions by which such derivation is, in my opinion, to be tested. The first of these, seen and sketched by Mr. Falkener in 1844,[a] is at Celenderis in Cilicia, a town somewhat remote from Halicarnassus, and not specially connected with the province of Caria. Its architectural remains are all of the Roman period, though its coinage was, at an early date, of good Greek character. The building, of which a representation is here shewn (Fig. 11), copied from Mr. Falkener's plate, is of a late and rather debased style. It is evidently monumental, and probably sepulchral. It has no basement visible above the ground, but it shows a perfect pteron, and a pyramid above, of which the upper part only is lost. That which connects it with the three preceding examples is the entire openness of the pteron. But that which throws doubt on our right to treat it as an imitation of the Mausoleum is the principle on which that pteron is constructed. The Mausoleum, Pliny tells us, was surrounded by thirty-six columns. The façades in which these columns were arranged must each have had, under the Greek system, horizontal entablatures, whose weight was evenly distributed over a series of vertical supports or props. The three monuments already described are all constructed on this principle, and their difference from the Mausoleum is merely a difference in the number of vertical props, arising from the difference in the size of the buildings. But in the Celenderis monument this constructive principle is mixed up with

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[a] *Museum of Classical Antiquities*, 188.

another essentially different. By means of four semi-circular radiating arches, connecting the pilasters at each angle of the pteron, and themselves resting on jambs which combine with the pilasters to form four solid piers, the weight of the roof and pyramid is thrown altogether on these composite supports at the angles, an arrangement obviously incompatible with the use of any intervening vertical props, and therefore incapable of being extended into the colonnades of a large peripteral building. The principle is in fact the same as in the Albert Memorial in Kensington Gardens, a monument similar to the Mausoleum in motive, and not, as I think, altogether dissimilar in general composition, notwithstanding the difference of styles, but whose pteron is constructed on a mechanical principle quite diverse from that observed at Mylassa, Souma, and Ooran. A structure of which the roof rested on supports limited to the angles, and was connected with those supports by radiating arches, could not by any process known to Greek architecture be expanded into a building surrounded by thirty-six columns, nor can it therefore be fairly recognised as a reduced copy of such a building. Consequently, though the Celenderis monument satisfies our first and second conditions, I cannot consider it sufficiently reconcileable with the particulars of Pliny's account to satisfy the third and fourth.

5. Lastly must be mentioned the beautiful, and still nearly perfect, monument at Glanum, the modern St. Remy, in Provence.[a] This building, which may possibly have been a tomb, but more probably only a cenotaph, appears from its inscription to have been dedicated by Sextus, Lucius, and Marcus, Julii, to two of their male relatives.[b] It is not to be concluded from the name that these persons were members of the great Julian family: more likely they were Gallo-Romans, whose progenitor had obtained the Julian name by adoption. Nevertheless, the style of the architecture, and the orthography of the inscription, seem alike to refer the building to the first century after our era (Fig. 12). The dimensions of the monument are loftier, and the composition more varied and ambitious than any hitherto described. It consists of three divisons:

(1.) A square basement, adorned on each face with bas-reliefs representing martial scenes.

(2.) A square pteron, with wide arched openings on each side, the arches supported only by piers at the four angles.

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[a] Illustrated with large plates in the *Antike Denkmäler der Deutschen Archäologischen Institut,* i. Part 2, Berlin, 1887.

[b] The inscription is: SEX . L . M . IVLIEI . C, F . PARENTIBVS . SVEIS .

(3.) A super-pteron, that is, an upper story in the form of a second pteron, but circular in plan instead of square, thus resembling what Vitruvius calls a *tholus*, or monopteral temple. It is composed of a cincture of ten columns, enclosing a space occupied only by two statues, representing the persons for whose glorification the building was evidently erected. Above the columns is a canopy, in the form of an entablature surmounted by a low cone. Probably, no ancient structure still surviving is better entitled to the description of *Aere vacuo pendens*, and certainly its crowning feature might without inaccuracy be said to contract itself into a *metæ cacumen*. Whether its design, however, was directly suggested by that of the Mausoleum seems open to doubt. It is not merely that its pteron proper is constructed, like that at Celenderis, on a principle unknown in autonomous Greek architecture, which does not admit of adaptation by mere horizontal expansion to a Greek peripteral building. But the highest story, or super-pteron, though free from this objection, is almost identical in form with certain monuments in European Greece still existing in Roman Imperial times, which might, some of them, probably have been known to the architect at Glanum, and which were on a scale better suited for his imitation than the Mausoleum. Thus at Corinth was the heröon of Palæmon, in which a circle of columns, strictly monopteral, surrounded a statue of the hero on his dolphin, open on every side to view, and which only differed from the Glanum monument in being covered by a dome instead of a cone. This building was still standing in the latter half of the second century, as appears from a coin of Lucius Verus,[a] and therefore certainly at the date of the erection of the monument at Glanum. At Sicyon also Pausanias relates that he saw several tombs which seem to have been of the same form, judging from the following words: *Λίθου ἐποικοδομήσαντες κρηπῖδα κίονας ἐφιστᾶσι, καὶ ἐπ' αὐτοῖς ἐπίθημα ποιοῦσι,* "having built up a podium of stone, they place columns upon it, and upon these make a canopy."[b] Such buildings are

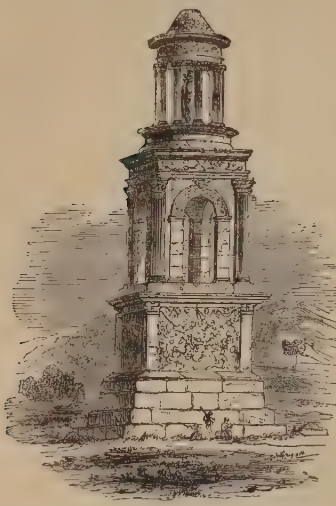
Fig. 12. Tomb at St. Remy. (From Fergusson's *Handbook of Architecture*, vol. i. p. 347.)

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[a] It is a middle-brass coin published, from a specimen in the British Museum, by Prof. Donaldson, *Architectura Numismatica*, fig. 15.

[b] *Pausanias*, ii. c. vii. 3.

represented on various Sicyonian coins of Septimius Severus, Caracalla, and Plautilla, and have been illustrated and explained by Professor Gardner in the *Journal of Hellenic Studies*.[a] The coins show in each case a monopteral shrine or *naidion*, with a canopy supported, as Mr. Gardner points out, by columns alone, without any walls, and with a statue in the centre. This is exactly the form of the super-pteron at Glanum, and the architect of that monument may therefore be supposed to have seen and imitated the design represented on the coins, without going so far afield as Halicarnassus. Whether or not the Sicyonian monuments may themselves have been derivatives from the Mausoleum it would be hazardous, with the slender evidence now remaining, to attempt to decide.

On the whole I incline to reckon the monument at St. Remy, and perhaps also that at Celenderis, among those productions of a Roman age which were indirectly influenced by the Mausoleum rather than distinctly imitated from it. It is hardly likely that, in days when printing did not exist, architectural delineations or minute technical descriptions of the Halicarnassian tomb, though perhaps to some extent accessible to the learned through the treatise of Satyrus and Phyteus, or the *De Septem Miraculis* of Philo of Byzantium, could have been in such general circulation as to furnish models for copying throughout the Roman provinces. But if the pteron of the Mausoleum may be rightly conceived as an elevated upper story, constructed to display an iconic statue under a canopy resting only on columns, pilasters, or piers, which were so placed as to allow an unobstructed view of the statue from each of the four cardinal points, then such a striking and previously unknown arrangement would naturally be celebrated throughout the ancient world, and its openness, altitude, and aerial lightness would be talked of as the characteristics which chiefly produced its renown. These characteristics the architect at Glanum might have emulated in his much smaller, but still elaborate design, even though he was ignorant of the exact manner in which they were displayed in the original monument, and content to trace their development through the later modifications, adapted to less magnificent buildings, with which he was familiar.

It is somewhat singular that the three learned writers, from whom the several preceding illustrations have been borrowed, should all have confined themselves to mentioning, or briefly describing, the monuments which they think may throw some light on the form of the Mausoleum, without in a single instance attempting to point out what is the particular light they throw, or indeed to draw any inferences of a practical nature from them.[a] Not one of the three, so far as I can see, has at all regulated or qualified his restoration of the building by adopting a single feature from any of the so-called *exempla* (as Mr. Fergusson entitles them) which he cites in illustration of it. To me, however, it would appear that, if any benefit is to result from an examination of the monuments which have the best claim to be considered imitations of the Mausoleum, it must be by noting what particular features of the Mausoleum the architects of those monuments have apparently imitated or reproduced. Now no inference from the monuments, taken by themselves, seems to me more clearly indicated than this: that the Pteron, or principal story of the Mausoleum, must have had no *cella*, nor any long continuous wall within its peristyle, but must have been open internally to air and view. If this be the manifest indication of the monuments, let us turn to our other fountain of authority, the testimony of the ancient writers already quoted on this cardinal point. The result is practically the same. Neither in Pliny, nor any other author, is to be found the slightest reference, direct or indirect, to a *cella* within the peristyle; whilst the words of Martial, if they apply at all to the Pteron, are virtually in contradiction to such an idea. Failing, then, both classes of evidence, monumental and literary, let us simply appeal to reason, and consider whether, in such a building as we know the Mausoleum to have been, it is likely or unlikely that there would have been a *cella* in the highest story. The *cella* of a temple was intended for religious rites, as also for the preservation of articles of sacrificial use, and sometimes of public treasure; and it was necessarily on the lowest, because in a temple the only, floor. The *cella* of a large sepulchral building was used for *Enagismata*, or other funeral rites; and opening out of the *cella*, where the building gave sufficient space, were smaller chambers, sometimes also *loculi* smaller still, for preserving the remains of the dead. In the Mausoleum, as we know from De la Tourette's account, there was on the lowest floor a "large and fine" apartment, which was, to all appearance, fitted to every purpose of a *cella*. There was also on the same floor a sepulchral chamber, which was entered by the Rhodian knights; and probably other chambers, of which they have left no record. Thus all the uses of a *cella*, with its adjoining apartments, were provided for in the basement. What, then, could be the motive or meaning of adding a second *cella* 50 or 60 feet above? No hint has been given by any of my predecessors in the discussion, who unanimously assume the existence of this upper

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[a] Apr. 1885, p. 77.

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[a] It is perhaps not less singular that Herr Petersen should have altogether ignored this branch of the investigation, making no mention whatever of any of the existing monuments supposed to illustrate the Mausoleum.

cella, of the use to which they would apply it, though Sir Charles Newton and Mr. Pullan, who have published the section, reproduced on a preceding page, of two beehive-shaped *cellæ* exactly alike, one above the other, must surely have considered this question. Formidable as it is to find myself in opposition to so many eminent authorities, I feel bound frankly to avow my conviction that this upper *cella* is merely a dream of modern restorers. The Greeks were not a people of one idea. They did not, like so many of their modern interpreters, suppose that because the normal form of a temple, the form indeed under which they succeeded in erecting the most beautiful building remaining in the world, was a *cella* within a peristyle, therefore every peripteral structure must of necessity enclose a *cella*, whatever its position, motive, or use. Nor did they suppose that, because the roof in a peripteral temple was supported by a *cella*, it was therefore indispensable to provide a *cella* to support the roof in every peripteral building. Where it was for any reason undesirable to have a solid enclosure within a peristyle, the Greeks would have known how to substitute inner rows of columns, pilasters, or piers, sufficient to carry any intended superstructure. As, then, the supposition of a *cella* in the highest story of the Mausoleum seems in itself at variance with probability, and as it is unsupported by any positive, and opposed to all the negative, evidence, whether literary or monumental, which we possess, I must conclude, both on *à priori* and *à posteriori* grounds, that it is untenable. It has, I believe, obtained its acceptance hitherto chiefly because it seemed to offer a solution of a difficulty involved in one of the measurements recorded by Pliny, for which, however, I purpose hereafter to submit, under its proper head, a different explanation.

C.—CONCLUSIONS FROM THE EVIDENCE.

It is now time to formulate the joint results of the investigations carried on under the two preceding heads (A and B) of the present inquiry. The following propositions appear to me to be established by the combined evidence as clearly as the nature of the subject will admit. They are stated in an order corresponding to the succession of the parts of the Mausoleum to which they apply, ascending from base to summit.

I. The building was elevated upon a lofty flight of steps or gradines, continued on all four sides, which is referred to by Pliny as the *pyramis inferior*, and which was discovered by the Knights of Rhodes standing *in situ*, the upper part partially open to view, the lower part buried in the earth.

II. Within this lower pyramid was the true *cella*, with a sepulchral chamber adjoining; and this *cella* was neither circular, as represented by Mr. Pullan, nor divided into three aisles by columns, as represented by Mr. Fergusson, but square, and internally open, as seen and described by De la Tourette.

III. The Pteron, which was the characteristic story, specially expressing the artistic motive of the whole monument, was of an open construction, which left the interior visible from all four sides, the roof or canopy being supported merely by columns, pilasters, or piers, arranged so as not to obstruct the view into and through the whole.

IV. The Pteron had, externally, some marked structural feature, which distinguished its fronts from its sides.

V. The highest part of the building was originally a perfect pyramid, equal in height to the lower pyramid, composed of twenty-four steps, and terminating in an apex like the apex of a meta; but it was truncated by Pythis to make a platform for his quadriga, and thenceforth was of less height than the lower pyramid, and had less than twenty-four steps.

These five propositions form the cardinal principles by which the restoration here attempted will be governed. Other statements will have to be made, and other inferences suggested, some with more or less confidence, some with admitted doubt, some with alternative applications. On any one or all of these statements and inferences I am freely open to correction, if favoured with the criticism of more able or learned investigators. For any or all of them I will readily substitute any amendments offered in free discussion, which may be supported by proofs, or even by probabilities, stronger than I am able to adduce for my own theory. But the five cardinal propositions must stand as pillars of the scheme; and, if they fall, the whole superstructure must collapse with them.

Here then closes the first part of the present inquiry. On a future occasion I hope to be permitted to explain the application of the five propositions here laid down to the restoration I desire to submit to the Society, and to illustrate that restoration by plans, elevations, and sections, with tables of measurements and proportions, so as to bring the soundness or unsoundness of the propositions themselves to a test which may be judged of by all. This will be followed at a later date by an examination of the second principal question stated at the beginning of this essay, namely, what was the most probable arrangement of the chief sculptures of the Mausoleum which have been preserved to us, an examination which will, I trust, be less tedious and technical than that which the first or architectural question has necessarily involved.

Part II. Read June 21, 1894.

D. Proposed Restoration.

The way has been cleared by the arguments and illustrations submitted to the Society in my former paper for the scheme which I have now to offer in reply to the first and principal question of the present inquiry, namely, what was the architectural form of the Mausoleum? I proceed then to describe the chief features of the restoration here proposed.

Before entering into the details of this restoration, however, certain explanations must be made; firstly, as to the principle of measurement here adopted, and secondly, as to the manner of determining the dimensions and location of that architectural member which chiefly governs the proportions of the principal story or Pteron; the column, I mean, of the order.

1. In accordance with long-established architectural usage the diameter of the column at the bottom of the shaft is here used as a modulus for all the dimensions of the building immediately connected with the principal order. I am aware that Mr. Fergusson has thrown discredit on this practice by the following statement:[a] "Mr. Watkiss Lloyd has proved that the time-honoured doctrine of the Vitruvian school—that the lower diameter of a column was the modulus of every other part of a building—had no place in Greek art." Now, it happens that none of Mr. Lloyd's published writings on this subject make mention either of the "Vitruvian school," or of their "time-honoured doctrine."[b] Nevertheless, I am bound to mention that Mr. Lloyd himself informed me in a private and friendly communication that he accepted the virtual responsibility for this somewhat sweeping statement, having, in fact, discussed the subject orally with Mr. Fergusson in his lifetime, and expressed to him the opinion that the system

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[a] *Mausoleum, etc.*, 17.

[b] Those writings consist only, so far as I know, of (1), a paper on "Architectural Proportion," read at the Institute of Architects in 1859; (2), a dissertation on the same subject in the appendix to Mr. Cockerell's work on the "Temples of Ægina and Phigaleia"; (3), a memoir in the appendix to Part IV. of the Dilettanti Society's *Ionian Antiquities*; (4), a paper in the *Builder* of 30 Aug., 1890, on the "Principles of Proportion in the Parthenon." It is with sincere regret that I now refer to Mr. Lloyd, who since my earlier paper was read to the Society has passed away from us. Though ignorant of the details of my scheme, he had expressed friendly interest in its future development, and was always ready to assist me from the resources of his multifarious knowledge.

of the Vitruvian modulus was incompatible with his (Mr. Lloyd's) demonstration of the proportions exemplified in Greek temples. Whether the circumstance that a system, accepted in great part by architectural critics from time immemorial, was incompatible with an ingenious theory of proportion recently propounded by Mr. Lloyd, should be accepted as sufficient proof in itself of the fallacy of that system, may be open to question. But in any case it may be pointed out that Mr. Lloyd's demonstration of proportions is drawn solely from the measurements of Doric temples in European Greece built in the fifth century B.C.; and, therefore, to apply it, as Mr. Fergusson does, to an Ionic building of the fourth century in Asia Minor involves an extension of Mr. Lloyd's theory neither logical in itself nor justified as yet by any independent evidence from without. I will not, however, insist on this objection; for I am quite ready to admit the probability that the main principle of this theory, that is, the observance of ratios of low numbers between all such contiguous parts of a building as could be easily compared, both in what Mr. Lloyd terms "rectilinear" and "rectangular" proportion, would be found to apply to all Greek architecture of the best period, of whatever style, and in whatever locality. In accordance generally with that principle the present restoration has been prepared, as will be shown in detail by the tabular statement hereafter given of the dimensions of the principal parts of the building, and the proportions they bear to each other. But it must be permitted me to dissent from the general interdict pronounced by Mr. Fergusson, on the authority of Mr. Watkiss Lloyd, against the so-called doctrine of the Vitruvian modulus, as having no foundation in Greek art. That doctrine has, in my opinion, been much misunderstood both by these and other writers.

In the first place, it has been regarded as a contrivance invented by Vitruvius for an architectural system of his own. But the treatise of Vitruvius is really founded upon the writings of Greek authors extant in his time, of whom he mentions seventeen by name in the Preface to his Seventh Book; and his descriptions of Greek buildings, with the theories of proportion involved in them, are taken not from his own observation (for he seems never to have been in Greece or Asia Minor at all) but from the accounts written in most cases by the architects themselves, which were then still extant and accessible to him, though sometimes, it may be, not correctly understood by him. The system of comparing the principal parts of a columnar ordinance with the lowest diameter of the column is most fully developed by Vitruvius in his explanation of what he calls the "eustyle species of temples," in which the columniations were three diameters and a quarter in width.[a] This "species," meaning thereby this scheme of proportion, was, as he tells us, introduced by Hermogenes of Alabanda,[b] the inventor of the pseudodipteral arrangement of peristyles, and the architect of the temples of Diana at Magnesia, and Bacchus at Teos, whose own description of those buildings was extant when Vitruvius wrote. The first and most natural inference therefore is that Vitruvius found both the explanation of the eustyle system of proportion, and the use of the diameter as a medium of comparison, as a modulus or ἐμβάτης (the Greek name which he quotes) in the now lost treatise of Hermogenes. The Magnesian Temple of Artemis, which we know from another passage to have been pseudodipteral, was apparently also eustyle; and the second and equally natural inference from the Vitruvian account would be that this temple was designed by Hermogenes so far in measured conformity with the lowest diameter of its columns as to allow of that diameter being used as a modulus for testing all its proportions. The era of Hermogenes is not known to us on any direct authority. Dr. Hirschfeld places him conjecturally in the first half of the second century B.C.; but on no more conclusive ground than that the worship of Dionysus was actively revived at Teos in B.C. 193, and that this would therefore furnish a likely date for the temple of that deity which Hermogenes built.[c] On the other hand, Professor Cockerell, in his introductory account of the "Temple of Zeus at Ægina" (p. 16), assigns to this architect the date of *circa* B.C. 570, on grounds equally historical, though also equally conjectural, with those of Dr. Hirschfeld. Mr. Fergusson, who has published a full technical description of the Temple of Apollo Smintheus in the Troad, which, being pseudodipteral in arrangement, must have been posterior to Hermogenes, attributes it to the century preceding Alexander the Great, that is, from 436 to 336 B.C.[d] As Mr. Fergusson's judgment as an architectural critic seems entitled to more weight than the mere historical conjecture of Dr. Hirschfeld, itself in opposition to the conjecture, equally well or ill founded, of another eminent authority, I conclude for the probability that Hermogenes lived at least some time before the middle of the fourth century B.C. If then, as already suggested, Vitruvius found his exemplification of the ἐμβάτης, or modulus, in the treatise of Hermogenes, and if the architectural invention of Hermogenes was reproduced in a building erected during the century preceding 336 B.C., there would be no anachronism in supposing that the system of measurement he introduced might have been used by the architects of the Mausoleum in or about 350 B.C. But whether or not that system originated with Hermogenes, and whether its first use dated from before or after the era of the Mausoleum, the assertion that "it had no place in Greek art" is equally irreconcilable with the most fair and natural interpretation of the only historical testimony existing on the subject.

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[a] Lib. III. c. ii. s. 28, 29.

[b] *Eas symmetrias constituit Hermogenes*, s. 29.

[c] *Archæologische Zeitung*, 1876, p. 29.

[d] Dilettanti Society, *Ionian Antiquities*, part iv. p. 41.

In the second place an undue weight has been attributed, both by Mr. Fergusson and by others, to the modulus in question, as though it was intended to embody in itself the germs of all architectural proportion. But there is nothing in the language of Vitruvius to call for such a supposition. He nowhere asserts that all the dimensions of a building should be evolved from the diameter of the column as an organic and primary law.[a] On the contrary, he gives, in the case of the column itself, different and independent reasons which should govern its height, quite irrespective of any ratio to the diameter; such as, the absolute magnitude of the whole building, the proportionate width of the intercolumns, and the like; and, in the case of the architrave, he varies its height, not according to the diameter of the column, but according to the column's absolute height, to the elevation of the architrave itself above the eye, and other similar considerations. In these and other like instances he uses the diameter, not as regulating, but simply as expressing in scientific language, the proportions of the different parts of the building, thinking it the most convenient unit of measurement for explaining their relative dimensions. Such a system in no way conflicts with Mr. Lloyd's or any other theory of proportion between the parts themselves. Its only possible inconvenience in application arises when the modulus requires much subdivision to express the exact ratio between two compared parts. But the determination of that ratio by the usual comparison of feet and inches, or of feet and decimal fractions of a foot, involves an equal complexity in expression. Vitruvius himself descends to sixths and even eighths of the modulus to describe the dimensions of certain parts of a columnar ordinance. Considering, however, the simplicity of Greek architecture, I believe that most of its ratios will be found expressible by subdivisions of the modulus by no means inconveniently minute.

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[a] Stratico's interpretation of Vitruvius's text is the converse of Mr. Fergusson's. He concludes that its meaning is that the length of the principal façade regulated the diameter of the column, not that the diameter regulated the length of the façade. See Notes in his edition of Vitruvius, *loc. cit.* I do not, however, bind myself to this interpretation.

In the case of the Mausoleum it appears to me that, from its regular construction, no difficulty would be likely to result from a general, if not universal, application of the received modulus. The lower diameter of its columns, as determined by existing remains, was 3 feet 6 inches (Greek). The correspondence of this diameter with other leading architectural members in their *horizontal* extension is shown, not merely by its being an aliquot part of the only horizontal measurement given by Pliny (63 feet), but by its exact accordance with the dimensions of the two most important members of which specimens remain entire. For 1 foot 9 inches, or half a diameter, is the measure of the tread of the several discovered steps which belonged to the fronts of the upper pyramid, and 3 feet 6 inches, or a whole diameter, is as distinctly the measure of the horizontal divisions of the cymatium of the cornice, on which the lion's heads are separated from each other by that interval. That the *vertical* extension of each important architectural member was measured by the same modulus is not at first sight so apparent, for the only vertical dimension recorded by Pliny as belonging to the building itself, independent of its crowning sculpture, the 25 cubits which he names as representing the height of a certain part, is not a multiple of 3 feet 6 inches. The difficulty may, however, be met by an hypothesis which will not, I hope, be thought strained. Assuming, as is generally believed, that the 25 cubits were intended by Pliny as the height of the *order*, that is, of the column coupled with the entablature, I would suggest that the architects, in spacing out the vertical proportions in accordance with the given modulus, united the order with the attic above. The interposition of an attic, I ought here to explain, was needed to raise the whole of the upper pyramid into clear view, for without it the lower part of the pyramid would have been entirely hidden from below by the projecting cornice of the order. As the same obstacle would prevent the real height of the attic itself from being seen, that height might legitimately have been fixed at a figure which was not in itself a multiple of the modulus,[a] but which, when added to the height of the order, made up a multiple, and thus brought the most important feature in the elevation into the required conformity. In what proportion the 25 cubits of Pliny were divided between the column and entablature will be shown under the next head upon the evidence of actual remains. All the other vertical dimensions adapt themselves without difficulty to the modulus of 3 feet 6 inches, and it will therefore be assumed as the uniform standard of measurement both for length and height, and, except as to the steps of the two pyramids, the standard for breadth also.

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[a] Cf. inf. pp. 344-5, where it is given as 11 ft. 6 in., making up, with the order, 49 ft.

2. The columns of the Pteron are supposed by me to be only $8\frac{3}{14}$ diameters, or 28 feet 9 inches, in height. This is undoubtedly much below the proportion generally found in Ionic buildings of the fourth century. Mr. Penrose and Mr. Watkiss Lloyd have proved by careful examination of the remains of the temples of Athene Polias at Priene, and of Apollo Smintheus in the Troad, that the normal proportion of the column, at least in Asia Minor, was 10 diameters.[a] A nearly equivalent height, though varying in different accounts from $9\frac{1}{2}$ to 10 diameters, has been determined for the still standing columns of the temple of Apollo Didymæus at Branchidæ. Mr. Penrose therefore felt himself justified in asserting, in a lecture at the Royal Academy, that "ten diameters is the proportion found in the best Ionic specimens."[b] Nor is the authority of Vitruvius at variance in any material degree with these statements. Assuming as a principle that the height of the column would increase or diminish inversely as the width of the columniation, Vitruvius determines 8 diameters as the height to be found in an aræostyle colonnade, $8\frac{1}{2}$ in a diastyle, $9\frac{1}{2}$ in an eustyle, the same in a systyle, and 10 in a pycnostyle.[c] The arrangement adopted by Mr. Fergusson in his restoration, and also by Herr Petersen, is systyle; that of Mr. Pullan is, as usual, irregular, somewhat closer than systyle, but less close than pycnostyle,[d] so that by the Vitruvian standard the columns in each of these schemes should have been $9\frac{1}{2}$ diameters high, Mr. Pullan's indeed rather more. The restoration now proposed, as will be hereafter more fully explained, is on the pycnostyle system; and at first sight therefore I should have felt myself bound both by ancient and modern authority to make the columns 10, or nearly 10, diameters in height. But it must be observed that the definition of Vitruvius relates only, or at least primarily, to temples (*ædes*), and the monuments on which Mr. Penrose and Mr. Lloyd have founded their conclusions are temples exclusively. In the Mausoleum the construction of all the parts above the Pteron was so different in design from that of a temple, and the weight to be carried by the

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[a] Dilettanti Society, *Ionian Antiquities*, part iv. Introd. 52, 55-6.

[b] Published in *The Builder*, 7 March, 1885.

[c] *In systylo altitudo dividatur in novem et dimidiam partem, et ex iis una ad crassitudinem columnæ detur: item in pycnostylo dividenda est altitudo in partes decem, et ejus una pars facienda est columnæ crassitudo. Eustyli autem ædis columnæ, ut systyli, in novem partes altitudo dividatur et dimidiam partem.* Vitruvius, *De Architectura*, lib. III. c. ii. v. 31 (ed. Stratico; cf. Wilkins *in loc. cit.*).

[d] By a somewhat singular oversight Sir Charles Newton (p. 203) describes Mr. Pullan's arrangment as aræostyle, and dwells on the advantage of the wide intercolumn thus gained for the display of statuary.

insulated pilasters immediately behind and corresponding to the columns was so much greater than that of the ordinary gabled roof, that a relatively shorter proportion for the columns would have been not only safer, but probably more agreeable to the eye, as conveying a greater sense of stability and repose. These considerations would justify an exceptional shortening of the columns in the restoration, even if only founded on theory; but they have really a stronger basis in fact. Mr. Penrose, in a letter with which he has kindly favoured me, states that he was supplied by Sir Charles Newton many years ago with the measurements of several drums of columns discovered among the ruins, which Mr. Penrose himself verified from such drums as are now in the Museum; and having compared them with the diameters of the capitals and bases which are also there, and calculated the entasis of the columns, he concluded that the columns could not have been more than from 8 to 8½ diameters in height. For these concurring reasons I have accepted, with a slight variation to be explained presently, the comparatively stunted proportion adopted by Mr. Pullan, and apparently followed both by Mr. Fergusson and Herr Petersen. In consequence, I find no difficulty in understanding the 25 cubits of Pliny as the height of the order of the Pteron, which, had the normal proportion of 10, or even 9½ diameters been adopted, would have been quite impossible.

If then 25 cubits, or 37 feet 6 inches, was the height of the whole order, the exact height of the column to an inch may be left to depend on the previous determination of the height of the entablature from the portions of it which have been discovered. In investigating this last point I must rely on the detailed measurements given by Mr. Pullan in the plates to Sir Charles Newton's work. As an unprofessional person, I should not myself have presumed to question their correctness. Mr. Fergusson, however, has commented somewhat severely both on the absence of scales for measurement in the plates, and on the unusual system of notation, by which Mr. Pullan has adopted, in the subdivisions of a foot, decimals of the foot in lieu of inches and decimals of the inch. The difficulties of the reader, it may be added, are aggravated where, as in Plate XXII., he finds the figures lithographed in a manner which does not accord, as far as I can discover, with any system whatever. The heights of the three members of the entablature are there printed in the following form:

Architrave	3′.3·9
Frieze	2′.9·3
Cornice	2′.4·88

It is thus impossible to say positively whether the architrave, for example, is meant to be 3′.3″·9 in height, that is, 3 feet 3 inches and 9 tenths of an inch, or 3′·39, that is, 3 feet and 39 hundredths of a foot; whether, in fact, the lithographer has omitted the proper mark of inches over the second 3, or has gratuitously inserted a point between that 3 and the 9. On the whole, considering that Mr. Pullan's usual practice is to give only the decimals of a foot and to exclude inches, I have thought it safest to conclude that the corresponding notation was intended here, and that the error of the lithographer lay in the insertion of the second point. On this supposition the height of the whole entablature, as measured by Mr. Pullan, was really as follows:

Architrave	3′·39
Frieze	2′·93
Cornice	2′·488
Total . . .	8′·808

This is equivalent to a small fraction above 8 feet 9 inches. As then Mr. Pullan's measurements were taken of course with English instruments, and as the small fraction would naturally express the difference between English and Greek measures for that length, the 8′·808 here arrived at may be assumed to represent 8′·75 Greek, that is, 8 feet 9 inches, a dimension which is exactly equivalent to two and a half diameters or modules. Having therefore accepted the 37 feet 6 inches of Pliny as the height of the entire order, it results that we have 28 feet 9 inches remaining as the exact height of the column. This is equal to eight diameters and three-fourteenths, or one-fourteenth less than the height adopted by Mr. Pullan.

Next, we have to ascertain the relative position of the columns; in other words, the width of the columniation, which is the chief determining factor of the length and breadth of the building. Among the architectural remains in the British Museum there are two recurring members which throw some light on this question, first, the portions of *lacunaria* from the ceiling of the peristyle, or some other part of the Pteron; and second, the lion's heads from the cymatium of the principal cornice, which are spaced, as already stated, at intervals of 3 feet 6 inches. The portions of *lacunaria* are so few and broken, that I should hardly have ventured by myself to draw any conclusion from them. But the late Professor Cockerell brought his great technical knowledge to the elucidation of these among other discovered parts of the building, and, as is well known, arrived at the conclusion that the proportions of these *lacunaria* pointed to a columniation of

8 feet 9 inches, or two and a-half diameters in width.[a] The indications to be drawn from the lions' heads depend on the view taken of the relation they bear to the arrangement of the columns below them. Vitruvius says that a lion's head should be over the centre of every column. Mr. Fergusson has followed this rule in his restoration, with which indeed, from the exact equality of the diameters to the spaces between the heads, it naturally falls in; and having made all his columniations, except at the angles of the building, equal to three diameters, or 10 feet 6 inches, and the intercolumns equal to two diameters, he has, besides the lion's head over each column, placed two others over each space between them. Mr. Pullan, who here, as elsewhere, seems a votary of latitudinarianism, disregards the supposed necessity of bringing his columniations into any conformity with the position of the lions' heads, and has made them 10 feet wide, or 6 inches less than three diameters.[b] There is unfortunately, so far as I know, no ancient building remaining in sufficient integrity to show authoritatively either the application of the Vitruvian rule, or its modification or abandonment in practice by the architects of the best age. But to me it seems incredible that the complete and scientific symmetry of a Greek colonnade should ever have been marred by the discordance of two members so easy to harmonise as the two members in question, except

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[a] Mr. Cockerell's conclusion is reported by Mr. Fergusson, *Mausoleum, etc.*, 36. Since this paper, however, has been in hand, a *lacunar* stone has been partially restored and set up by the Museum authorities in conjunction with a restored column. If this location of the stone be strictly adhered to, it would certainly involve a wider columniation than 8 feet 9 inches, with an intercolumn of only 5 feet 3 inches. If, however, the stone be taken separately from the column, it may be supposed to have belonged to the ceiling over one of the four central openings in my design, which, as explained in the text, are adapted to columniations of 10 feet 6 inches and intercolumns of 7 feet. In the peristyle these openings have a transverse dimension corresponding to the general intercolumn, which leaves only 5 feet 3 inches in the clear. But in the inner ambulatory, running between the great piers and the insulated pilasters in front of them, there is a space corresponding to a columniation of 10 feet 6 inches, leaving 7 feet in the clear; for the face of each great pier is kept back by 1 foot 9 inches, so as to form a line which, if prolonged, would strike the *centre* of the outside column of the portico or of the side colonnade, just as, in the Parthenon and several other temples, the side walls of the *cella* are kept in a line with the *centres*, not the outsides, of the corresponding columns in the fronts. Thus the four central spaces in the inner ambulatory would each be ceiled by a *lacunar* stone corresponding to columniations of 10 feet 6 inches, with 7 feet each way in the clear, which is about the dimension of the restored stone in the Museum.

[b] *A History of Discoveries at Halicarnassus, etc.*, ii. 171. Mr. Pullan's justification of this is that he found a lion's head at only 1 foot 9 inches from the extreme end of the cymatium, and this of course could not have been over the centre of a column. But it might very well have been over the outer edge of a column, as it was at Priene (see Canina, *Architettura Greca, tav.* xxx.), and it is accordingly so placed in the present restoration.

where some evident architectural motive justified the irregularity, and removed from it the appearance of carelessness. I prefer to adhere to the *principle* embodied in the rule of Vitruvius, though varying the form of its application according to the requirements of the particular case, keeping, that is, the position of the lion's heads always in some calculated correspondence, whether fixed, or varying by an easily understood law, with the position of the columns. These heads, in the Mausoleum, were separated from each other by intervals of one diameter. The columniations therefore, to be in harmony with them, should be either three diameters in width, which allows of a head over each column, or two and a-half diameters, which allows of a head over every alternate column; and this last is the arrangement actually found in the Ionic colonnade of the south-west building at Olympia.[a] Two and a-half diameters, or 8 feet 9 inches, is, as already stated, the columniation preferred by Professor Cockerell for the peristyle; and, as it is also exactly equal to the height determined for the entablature, we may, by adopting it, obtain an example of what Mr. Watkiss Lloyd calls "rectangular proportion." This columniation distinguishes what Vitruvius calls the "pycnostyle system." It was approximately, if not exactly, that of the Temple of Apollo at Branchidae, as well as of Apollo Smintheus in the Troas. But its peculiar appropriateness for the Mausoleum arises from the unusual weight of the pyramidal roof, which called for an unusual closeness in the columnar supports, and in the insulated pilasters behind, which corresponded to them. On these combined grounds I have adopted the pycnostyle columniation generally in the present restoration, but with one exception, which is suggested by the architectural motive of the Pteron itself. That motive was to form a kind of panopticon at the centre of a group of architectural piers, where the *eikon* of the deceased dynast would form the cynosure of eyes looking from each of the four points of the compass. To assist the view of this *eikon* from without, and to distinguish the central or most important opening from those at the sides, exceptional width should be given to the central intercolumn in each of the surrounding colonnades; and I have therefore added to it 1 foot 9 inches, or half a diameter, both at the fronts and sides of the building. This wider central opening, where the motive for it is obvious, is authorised by ancient practice. In *propylaea* it was almost, if not quite, universal. Vitruvius even recommends it for the fronts of Ionic eustyle temples, to facilitate both the view of the *eidolon*, and the access of worshippers. In Doric temples it appears from existing remains to have never been adopted; but the Doric ruin at Thoricus, which seems, both on this and other grounds, not to have been a temple, has a wider intercolumn in the middle of its longest side.[a] Among Ionic remains the most important examples of this arrangement are to be found in the temples of Artemis at Ephesus,[b] and of Rhea at Sardis.[c] The porticoes of these two magnificent buildings exhibit a further and exceptional refinement in the columniations, which are made to diminish continuously in width from the centre to the sides. In the present restoration the advantage of improving the view of the colossal monumental figure is obviously a sufficient motive for enlarging the central opening; but the continuous diminution in the width of the side openings would, with such porticoes as here introduced, be manifestly out of place.

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[a] See *German Excavations at Olympia*, part iv. Pl. XXXVIII. and part v. Pl. XLIII.

We may now proceed to the description of the building, as restored in the present design. It will be best to begin with the base, and ascend continuously to the summit.

1. The entire area of the monument, so far as the explorers could determine it from the cutting of the rock below, has been given by Sir Charles Newton at 127 by 108 English feet.[d] The unevenness of the level, however, and the effacement of the bounding line in great part of the foundations, must have made any measurement of the area difficult; and possibly, as Mr. Fergusson suggests, the excavators did not at the time attach any cardinal importance to the exact extent of the two dimensions they were measuring, and their ratio to each other, and did not therefore ascertain them with any especial care. I agree with Mr. Fergusson that the true measurement would more probably have been 127 feet 6·75 inches by 106 feet (English), which is equivalent to 126 feet by 105 feet (Greek), or in the ratio of 6 to 5.

Upon foundations of these dimensions was raised the lower Pyramid, the existence of which we have before identified from the narrative of De la Tourette. The height of this pyramid is stated by Pliny to have been equal to that of the upper pyramid, which will presently be shown to have been originally 24 feet 6 inches. But the number of the steps composing the lower pyramid is not given by Pliny; nor is the extent to which this pyramid was gradually contracted in its ascent anywhere recorded; neither can its slope be calculated from any of the remains of the building now in our Museum. We are consequently left to settle these details in the manner most consistent with the general scheme we may adopt. In my design the flight of steps or gradines which the Knights of St. John discovered is supposed to rest upon a plain massive plinth, 6 feet 6 inches in height, intended both for convenience and dignity of effect. The steps themselves are made twelve in number, each 1 foot 6 inches in height. But their treads (if such a term may be applied to surfaces never intended to be trodden on) vary on the fronts and sides of the pyramid, in accordance with the different length and breadth of its base. The treads on the fronts are 10·5 inches, those on the sides 8·75 inches. Twelve of each give an aggregate of 10 feet 6 inches on the fronts, and 8 feet 9 inches on the sides; and these last figures represent the spread of the pyramid longitudinally and laterally, or the difference at each end and side between its bottom and its top. Doubling these figures, to express the same difference at both extremities, the top of the pyramid will be 21 feet less in length, and 17 feet 6 inches less in breadth, than the bottom. That is, it will be 105 feet long by 87 feet 6 inches wide at the top, which, like the 126 feet of length by 105 feet of breadth at the bottom, is in the ratio of six to five. The pyramid in my design is supposed to be broken at certain points, both on the fronts and sides, by projecting blocks, intended to obviate the monotony which would result from the uninterrupted continuance of such a lofty flight of steps all round the building. The blocks at the sides are designed to carry groups of sculpture. Those at the fronts can be better explained later on.

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[a] Dilettanti Society, *The Unedited Antiquities of Attica*, ch. ix. Pl. I. p. 57.

[b] Wood's *Ephesus*, p. 268, and Plan, p. 262.

[c] Canina, *Architettura Greca*, *tav.* xli.; Dilettanti Society, *Ionian Antiquities*, part iv. Introd. 15.

[d] *A History of Discoveries at Halicarnassus, etc.*, ii. 270, n. 39.

2. The Podium, which rises from the top of this truncated pyramid, is of necessity the most conjecturally restored member of the whole structure. Its existence is inferred from the analogy of other sepulchral monuments, and has been practically admitted by all restorers; but it is neither mentioned by any ancient author now extant, nor identified by any fragments discovered among the ruins. Its proportions must be limited in plan by the boundaries of the two stories or divisions of the building immediately above and below; and in elevation by the residue which the aggregate of the other divisions leaves in filling up the 140 feet named by Pliny as the height of the whole. In the present scheme the height of the Podium is made 28 feet, including the two steps at its top; but these steps require a few words of explanation.

It is commonly said that the *heröa* of the Greeks were raised upon two steps, in distinction from temples, which had properly three. Mr. Pullan has accordingly placed two steps between his podium and pteron, forming a kind of stylobate to his peristyle, and I have adopted the same arrangement. The upper step I have made 1 foot high, not on any actual authority, but in accordance with the dimensions of most of the steps from different parts of the building which are now in the Museum. The lower one is ostensibly 1 foot 9 inches in height. Supposing, however, that a gutter for drainage, 3 inches deep, ran at the foot of these steps, behind the cymatium of the podium, the lower step might have been really 2 feet in height, out of which 3 inches at the bottom would have been unseen, and must therefore be omitted in all calculations of the vertical dimensions of the entire monument. There is in the Museum a block, numbered A. 25, which has a dressed front like the riser of a step, and is said in the "Guide to the Mausoleum Room" to be 1 foot 11¾ inches in height, with 4 inches on the top dressed like a tread. I could not venture, without the evidence of other corresponding specimens, to affirm positively the position or use of this block. But certainly it would be well fitted to form part of a course such as is here suggested for the lower step. In accordance with this idea I have made the tread at the top of that step 4 inches in width.

3. The Pteron. Here we are at once guided and restrained by the description of Pliny. Let us examine his words in their order.

(A.) *Patet ab Austro et Septentrione sexagenos ternos pedes, brevius a frontibus, toto circuitu pedes quadringentos undecim.* Here is the crux which has tortured so many previous critics. How, it is said, could a building whose sides were only 63 feet long, and whose fronts still less, be 411 feet in circuit? To solve this enigma, it has been conjectured that the first two clauses of the sentence must refer to a different part of the building from the third. The former, it was at one time suggested, might be meant for the dimensions of the Mausoleum itself, the latter for those of its *peribolus*. When this was found incompatible with the discoveries of Sir Charles Newton's expedition, it was suggested that the first two clauses might relate to the central *cella* within the Pteron, the third to the peristyle. I have, however, as I think, sufficiently proved by arguments which form the basis of my third proposition, that this supposed *cella* had in reality no existence. How then do I reconcile the alleged inconsistency in Pliny's measurements? Simply by pointing out that the critics have put a gratuitous and, as I believe, unwarranted limitation on the meaning of his words. They have one and all assumed, as an axiom needing no proof, that those words imply that the Pteron must have been strictly quadrangular in plan. Yet Pliny nowhere says that it was quadrangular, nor does any other ancient writer. Neither does Pliny say or imply that the thirty-six columns which surrounded the Pteron were all disposed in four colonnades, or that those colonnades met at four angles. The whole assumption, and with it the whole semblance of inconsistency or contradiction in Pliny, originates, I believe, from two sources: firstly, the fixed idea which underlies, however unconsciously, the conceptions of most architectural students, that every Greek peripteral building must have been designed on the plan of a temple; secondly, the indisputable fact that Pliny names only, amongst horizontal dimensions, those of the two sides and two fronts of the building. But this last fact does not make its plan necessarily quadrangular. Suppose, in describing St. Paul's cathedral church, I spoke of its north and south sides, and of its east and west fronts or ends, should I thereby imply that the church is quadrangular in plan? If I did, I should imply what is notably at variance with the truth. And so with the Mausoleum. Pliny, as I understand his words, did not mean his 63 feet to represent either the extreme length of the whole Pteron, measured alike on the north and south sides, as assumed by the earlier interpreters, or the length, similarly measured, of a certain internal compartment conceived to be a *cella*, as alleged by the later ones. He meant simply, in my idea, that the most prominent and conspicuous range of architecture in the principal story, as seen from the south or north, the feature of the exterior which first attracted the eye, and which exactly corresponded with the structural arrangements within, that is, the colonnade which flanked the Pteron, was 63 feet long, whilst the colonnade on each of the fronts was of shorter dimensions. If this interpretation be granted, we have then only to determine how the 63 feet would have been measured. The most natural mode of measuring a colonnade is from centre to centre of its outside columns, for a measuring rod or line can only be applied as a tangent to the foremost point of each column, which, to a person standing opposite, is in a line with its centre. Now it has already been explained that the columniation adopted in the present scheme is 8 feet 9 inches, with 1 foot 9 inches added to the central intercolumn, to enlarge the vista into the interior. Seven columniations of 8 feet 9 inches, plus 1 foot 9 inches in the centre of the range, make exactly 63 feet, and it results from this number of columniations that the colonnade must have been octostyle.

(B) On the east and west fronts, with the same columniation and the same central addition, we must, to meet Pliny's statement, *brevius a frontibus*, allow only five columniations, making the colonnades hexastyle, and extending them to only 45 feet 6 inches. The fourth proposition I have laid down in my former paper was, that the "fronts" must have had some marked structural feature to distinguish them from the sides. The feature employed by the Greeks to give distinction to their fronts was the pediment-headed portico, and to add to its dignity they commonly projected it two columniations, placing one column on each return, but none in the area inside. I have, therefore, thus treated the hexastyle colonnades on the two fronts, and crowned them with pediments and sloping roofs.[a] But as these porticoes, owing to the double columniations at their sides, are carried over a great portion of the pyramid below, the part of the Podium which bears them has to be similarly projected, and this projection is carried down to the ground-line of the basement, interrupting the flight of gradines at the east and west ends, and serving, as I have suggested under an earlier head, to break their otherwise monotonous effect.

(C) Behind both the front and side colonnades are rows of square insulated pilasters, which, with four columns at the angles of their convergence, complete the oblong cincture of the Pteron, and correspond, in extent and plan, with the outside edge of the pyramid above. Behind these pilasters, again, are seen eight massive piers or blocks, four of them square and four oblong, arranged in a quadrangle, in accordance with the general plan; they are sufficiently substantial to carry the heavy pyramidal roof, yet all detached, so as not to interfere with the view through every part of the Pteron. Further details of the arrangement of this story will be given in the description of the interior.

(D) The last of Pliny's measurements which we have to identify in the already quoted sentence of three clauses is the *totus circuitus* of 411 feet. Assuming, as shown in the earlier part of this essay, that all the figures in that sentence must relate to the Pteron, we have only to consider what is the most natural and convenient level on which to ascertain its perimeter. Surely, it is the level of the base, which furnishes a continuous line for measurement all round. This might be taken either on the upper or lower step, and I have preferred the latter. The details of such a measurement are too complicated to be specified in the present description, but they will be found fully set out in the subjoined tables, and it will there be seen that, following the outside edge of the lower step, the perimeter amounts exactly to 411 feet.

(E) Going on with the sequel of Pliny's description, which still relates only to the Pteron, we come next to his mention of the height, *attollitur in altitudinem viginti quinque cubitis.* Here, as already stated in the preliminary discussion of the modulus and its application to the Mausoleum, I accept the usual interpretation, taking the 25 cubits to refer to the order, or columns and entablature together. Of this, the most important section in the whole building, Sir Charles Newton fortunately secured many valuable remains; and by means of these the archæological staff of the Museum have lately restored and set up a portion of the original peristyle, which may be instructive to students. Having already given fully my reasons for dividing the 25 cubits, which equal 37 feet 6 inches (Greek), into 28 feet 9 inches for the column, and 8 feet 9 inches for the entablature, I have nothing further to remark on the words just cited.

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[a] In covering the inner space of the portico, no roofing stone would be needed exceeding 17 feet 6 inches in length, having 14 feet in the clear beneath it, which is 3 feet less than what Mr. Pullan requires to roof the space between the ends of his *cella* and the peristyle.

(F) Lastly, Pliny adds, *cingitur columnis triginta sex.* The plan here given of the Pteron shows two octostyle colonnades at the sides, and two hexastyle porticoes on the fronts. But each of the porticoes, having columns on the returns, comprises in all eight columns. This gives thirty-two columns for the whole of the four series. By the sides of these colonnades and porticoes, at the angles of the oblong area of the Pteron, are four more columns; and these complete the number thirty-six, which surrounded the whole story.[a]

4. The Attic. This feature is inserted partly for the reason already stated, to clear the view of the upper pyramid from the cornice of the Pteron; but also because it is required for supplying a proper abutment to the roofs of the porticoes. That it is in itself desirable on purely architectural grounds may, I think, be presumed on the authority of two such eminent architects as Signor Canina and Professor Cockerell, who have each introduced it in his own restoration from a sense of its artistic propriety, without the additional motive which is here suggested by the introduction of the porticoes.[b] The height I have given to it is 11 feet 6 inches; which is determined on the principle already explained

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[a] Mr. Fergusson has contended that the angles of the Pteron require special structural strength, and has thus justified his very abnormal contrivance of placing two, or rather three, columns at each angle, and so eking out the number in question. The Greek architects, however, who combined strict common sense with faultless taste, never resorted to exceptional supports where there was no exceptional weight to be carried. Their peripteral buildings invariably have single columns, not even square pilasters, at the angles, because, from the absence of any diagonal pressure in the superstructure, the weight was no greater at the angles than in any other part; in the Mausoleum, indeed, from the pyramidal form of its roof, it was actually less. The result of Mr. Fergusson's contrivance, so far from being, as he terms it, "æsthetically an improvement," seems to me rather to raise a sense of gratuitous incumbrance, which is distasteful in itself, as well as an acknowledged solecism in a composition purporting to be Greek.

[b] An attic is also inserted by Herr Petersen in his design.

in the paragraph on the use of the modulus.[a] For this height, when added to the 37 feet 6 inches of the order, makes 49 feet, a figure which is a multiple of the assumed modulus, and brings all the vertical divisions of the building into harmonious proportion.

5. The Upper Pyramid. The true interpretation of Pliny's description of this crowning feature has been sufficiently explained in the earlier part of the present investigation. It may be convenient, however, to repeat his words once more: *Supra pteron pyramis altitudine inferiorem æquavit, viginti quatuor gradibus in metæ cacumen se contrahens.* These words comprise three definite statements. (1.) That this pyramid was equal to the lower pyramid in height. (2.) That it was composed of twenty-four steps. (3.) That its apex resembled that of a meta. This description, I have shown, was meant to apply to the pyramid in its original form, before it was truncated by Pythis to provide a platform for his quadriga. It remains now to explain how the original, as well as the altered, form is adapted to the present restoration. Among the most important discoveries of Sir Charles Newton's expedition was a collection of steps, found about one spot just outside the *peribolus* wall of the Mausoleum on its north side, which all evidently belonged to the upper pyramid. These steps were carefully measured by Lieutenant Smith and Mr. Pullan, who found the average height of their risers to be 11¾ inches, whilst their treads were sloped off for drainage to the extent of ½ an inch, thus making the total height of each step 12¼ inches. Twenty-four such steps, amounting in aggregate height to 24 feet 6 inches, constituted this pyramid; and in correspondence therewith the lower pyramid has, as already stated, been made 24 feet 6 inches high in this restoration. The meta-like apex of the upper pyramid is represented in the accompanying plates, so as to show its original form before the alteration by Pythis. That alteration is here supposed to have comprehended the six highest steps, which were in all 6 feet 1½ inch high, leaving 18 feet 4½ inches for the steps which remained to the reduced structure. Upon the topmost of these latter steps, originally the seventh from the apex, the artist built a pedestal of oblong plan to carry his quadriga. This transformation I have throughout spoken of, for the sake of simplicity, as a truncation of the pyramid. In appearance it certainly was so; but in reality it is perhaps more probable that Pythis would have thought it safer not to disturb the six steps, but to leave them as an unseen central support for the sculptured group above.

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[a] See *supra*, p. 333.

The height of the pyramid is the only one of its dimensions referred to by Pliny, and this has now been shown, both in its original and altered form. But it is essential to our purpose to ascertain with equal exactness what were the length and breadth of the pyramid's base, and the present is the most convenient place for this investigation. The dimensions in question must be calculated from the treads of the several steps now preserved in the Museum. These consist of two classes, one belonging evidently to the longer projection of the pyramid, the other to the shorter, the former running out towards its east and west ends, the latter towards its north and south sides.[a] Mr. Pullan, having measured the treads of each class, gives them as averaging 21 inches in the one class, and 17 inches in the other. These figures are nearly, but not quite, in the ratio of 5 to 4. Mr. Fergusson accordingly, after remarking on the difficulty of determining merely by measurement the exact original dimensions of stones of which but few specimens remain for our guidance, and those few weatherworn and in parts mutilated, proposes a slight modification of Mr. Pullan's figures, just sufficient to establish the above-named ratio more exactly. He accepts the 17 inches for the narrower step in *English* measure, but assumes the wider one to have been really 21 inches of *Greek* measure, or 21.2625 inches of *English*. To this correction I assent in substance, but think it would be more clearly expressed in form by adhering uniformly to Greek measures, which indeed I have used exclusively in my design throughout the building. These measures give 21 inches for the one tread, and 16·8 inches for the other, this latter being equivalent to 17·01 English, which is virtually the same as Mr. Pullan's measurement.

Examples of two other steps were also discovered, whose treads measured respectively half the preceding ones, or nearly half, for their exact dimension cannot quite be determined. Mr. Pullan has placed these at the top of his pyramid, the wider ones at the fronts, and the narrower at the sides. I, however, suppose them to be remains of the highest course of steps left by Pythis after his alteration, and to have been then covered, over half their surface, by the base of the pedestal made for the quadriga. On this supposition they formed no exception to the original uniformity of dimension in the treads, and therefore do not interfere with the calculation of the length and breadth of the whole pyramid simply from those dimensions.

At the original apex of the pyramid, then, four steps met, one from each of its sides. However their four sections may have been adjusted, there must have been, longitudinally, two steps or parts of steps extending to 21 inches each, and laterally, two extending to 16·8 inches each. This would produce a flat top of 3 feet 6 inches by 2 feet 9·6 inches. Multiplying each of these figures by 24, the original number of the steps, we have a base of 84 feet by 67 feet 2·4 inches. The higher number represents the extreme length of the pyramid from east to west, the lower its extreme breadth from north to south, and the two dimensions, like those of the top, are in the exact ratio of 5 to 4. Upon the top itself would probably have been placed an *epithema*, perhaps a fleuron, such as on the Choragic monument of Lysicrates at Athens, erected about fifteen years later, or some other appropriate decoration; but this was of course removed when the quadriga was added.

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[a] Four or five angle-steps were also found, each combining the two classes in the treads of its two sides.

Having now ascertained the heights of the several vertical divisions of the Mausoleum, both in its original and its altered form, we have only to sum them up thus:

	Originally.		After Alteration.	
	ft.	in.	ft.	in.
Lower Pyramid - - - - - -	24	6	24	6
Podium (including two steps above) - -	28	0	28	0
Order (column and entablature) - - -	37	6	37	6
Attic - - - - - - - -	11	6	11	6
Upper Pyramid - - - - - -	24	6	18	4·5
Pedestal of quadriga - - - - -	—		6	1·5
	126	0	126	0

The result is, that the total height of the architectural portion of the building, without the sculptural addition made by Pythis, is seen to be exactly equal to the length (126 feet), and as 6 to 5 to the breadth (105 feet), of its base, dimensions which, if admitted to be authentic, show the extreme care with which Satyrus and Phyteus adjusted its every proportion.

But then comes the addition made to the building by Pythis, which, as Pliny tells us, raised its extreme height to 140 feet. We have therefore to assign 14 feet to the quadriga. Sir Charles Newton, with the aid of Lieut. Smith and Mr. Pullan, calculated the radius of the chariot wheel from the portions of it which they discovered; and adding sufficient height for the bottom of the car above the axletree, and for the stature of the chief figure which stood within it, and which was fortunately preserved nearly entire, they arrived at the conclusion that the complete group must have been about 13 feet 3 inches high. If, accepting this conclusion, we add 9 inches for the thickness of the slab or slabs representing the ground on which the chariot and horses stood, and which lay on the top of the pedestal, we have the 14 feet required.

It remains to describe the interior of the monument as now restored. This consists of two divisions only, the Basement and the Pteron.

1. It was ascertained by Sir Charles Newton's expedition that the lowest range of rooms, including probably the actual tomb of Mausolus, was considerably below the level of the surrounding ground, and of the architectural base of the building. Beyond the west end the explorers discovered and excavated a staircase cut in the rock, descending to a point about 26 feet westward of the foundations.[a] Opposite its foot was what had been originally, or at least once, used for an entrance to the underground chambers, but was afterwards closed by a large stone which was found *in situ*, and which had evidently been lowered into its place by machinery from above. Sir Charles Newton concluded that both the staircase and the entrance had been made for conveying the corpse of Mausolus to its final resting-place, and that the entrance had immediately after been blocked up by the inserted stone. One peculiarity in this stone was that its inner surface was polished, whilst its outer was left rough; suggesting the probability that the whole space between it and the staircase was at once filled up with earth, so as to conceal the entrance, and protect the contents of the interior. What apartment once existed immediately within the blocked opening, or what was the location or plan of any of the inner divisions of the basement, the explorers found nothing to show. We have therefore to depend exclusively on De la Tourette's narrative in restoring all that portion of the structure which he and his comrades so ruthlessly destroyed. His *belle grande salle carrée* may most naturally be assigned to the centre of the subterranean floor. The other chamber entered, but hastily quitted, by the knights, which De la Tourette likens to an

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[a] To understand the following description of the ground plan refer to Plate XXI.

antichambre, and which contained a costly tomb with cloth of gold, perhaps the tomb of Mausolus himself, may be supposed to have nearly adjoined the opening so carefully blocked by the great stone. I have accordingly placed it in my plan under the western portico; a position which might have suggested to the knight his idea of an antichamber or vestibule, if, as is probable, he did not discover that the access from without was purposely blocked up. The real ingress of visitors was, I believe, at the opposite or east end of the building, where, under the portico, I have placed an entrance-hall on the ground level. From this hall I suppose a staircase to have descended to the principal underground apartment, the true *cella* of the building, whose form and decorations are so fully described by the Rhodian knight. I have made this apartment 28 feet square and 24 feet high to the top of the cornice. For a quadrangular room, entirely open in its area within, these dimensions are larger than any which I know discovered in any Greek building anterior to the Roman age, and the knights might well have been astonished at finding themselves suddenly within such a room in the heart of a deserted mound. Much larger dimensions might no doubt have been assumed, could we, like Mr. Pullan, imagine a chamber of the "beehive" form used in the earlier times, where the walls were constructed in concentric horizontal circles of radiating stones with continuous and uniform pressure all round, closed at the top by a central keystone. But unfortunately the words of De la Tourette exclude the possibility of any but the square form, and in that form a very large room, without any internal support for its ceiling, could not safely have been attempted with the limited mechanical contrivances known to the Greeks. The roof of the room represented in my design is in the form of a hollow pyramid, constructed on each of its four sides with horizontal courses of stone blocks overlapping each other as they ascend to a small square central opening, which was covered by a single flat stone.[a] On the inner or chamber side the blocks in each course are worked off at the bottom, so as to fall into a continuous slope of ascent, and at the same time to remove unnecessary weight, whilst on the outer or wall side a heavy mass of stone or rubble overlies each block, and prevents it from rising behind. This is the same construction, vertically, as in the circular or "beehive" chambers, but horizontally it is less solid, from the inevitable breaks at the four corners of the room. It was at any rate found by the Greeks a safe method of roofing square apartments of moderate size, as appears from the three perfect examples to be presently cited, and perhaps others unknown to me. The

[a] Cf. sections of this room in Pls. XXIII. and XXIV.

majority, however, of sepulchral chambers now remaining are oblong in plan, and these were usually covered on a different system, one which was common to the Greeks with the Egyptians and Etruscans, and, I may add, with the Mexicans in Yucatan. In such chambers the two longer sides only were roofed with overlapping stones, whilst the two shorter ones rise perpendicularly from the ground to the summit.[a]

The most perfect illustrations I know of the system employed for square chambers, which is followed in the present restoration, are to be found in two tombs of supposed Kings of the Bosphorus, near Panticapæum. The first, which is in a tumulus now called Koul-Oba, was discovered in 1832, and contained skeletons with rich gold ornaments and various accoutrements, apparently dating from the fourth century B.C.[b] The structure of this tomb remains unbroken, and the roof is exactly of the form here adopted and just now described. The stone which covers the central opening appears, from the plate in the Russian publication, to have been adjusted to the highest course of blocks underneath it by a joggle-joint, making it strictly a keystone. The other Panticapæan tomb, which bears the name of Melek-Tchesmenskoi-Kourgan, was discovered some years later, and its contents had been already pillaged. Its form and construction are the same as those of the Koul-Oba.[c] A third tomb, with a similar pyramidal roof, was opened about thirty years since by Mr. Biliotti at Cazviri, near Camirus, and is described by him in an unpublished Report now in the British Museum, a copy of which has, by the kindness of Mr. A. S. Murray, been communicated to me. Two tombs were found at this place, the larger of which was evidently, from Mr. Biliotti's description and drawing, oblong in plan, though whether it was roofed in the manner here described as peculiar to chambers of that form, or upon some other system, will be more fully considered presently. But the smaller tomb, which is shown by its floor measurements to have been square, and into which the discoverers descended by removing the keystone in the centre of its roof, was evidently crowned with a hollow pyramid, just like the sepulchres at Panticapæum. It is true that all these examples of square chambers are small as compared with what I have designed for the Mausoleum. But given good materials and skilful workmanship, neither of which could have been wanting at Halicarnassus, there is no reason why a construction which is sound on a small scale should not be extended, within reasonable limits, to a larger one, retaining exactly the same design. To diminish any risk from the overhanging courses in my scheme, I have made the projection of each course somewhat less in proportion to its height, and consequently the slope of the whole series somewhat steeper, than in either of the examples at Panticapæum. Above the central keystone, which is an exact imitation of that at Koul-Oba, I have made a small triangular opening to relieve the weight, on the same principle as those over the Lion Gate at Mycenæ and the door of the so-called Treasury of Atreus, but here extended to each of the four sides, so as to form a pyramid instead of a single triangle. Whatever the construction of the roof over the Mausoleum chamber may have been, it must have been strong enough to resist the impact of such parts of the superstructure as fell upon it at the overthrow of the building; for, had the roof given way, the knights would have found, instead of a beautiful and apparently perfect apartment, a room choked up with fallen blocks and masses of rubble.

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[a] A well-known example of this system exists in the principal chamber of the "Regulini Galassi Tomb," near Cervetri, the ancient Cære. It is represented in Fergusson's *Handbook of Architecture*, i. 202, fig. 234.

[b] See *Antiquités du Bosphore Cimmerièn*, St. Petersburg, 1854, Plan A.

[c] See *Compte-rendu de la Commission Impériale Archéologique pour l'an 1859*, St. Petersburg, 1860.

The lower or upright walls of the chamber are here delineated, as far as possible, after De la Tourette's description,[a] the general purpose of which I have endeavoured to explain in the earlier part of this investigation. The room having been, as he tells us, *embellie tout au tour de colonnes de marbre, avec leur bases, chapiteaux, architraves, frises, et cornices, gravées et taillées en demy bosse*, I have here represented semi-columns engaged in the wall, six on each side (including those at the angles, which are common to two sides), so as to make twenty in all. I have designed them of the Corinthian order, which the Greeks commonly preferred for interiors, even though for the exteriors of the same buildings they used Doric or Ionic. Thus the great Temple of Apollo Didymæus at Branchidæ, built by Pæonius and Daphnis, though Ionic externally, had Corinthian semi-columns (such as here proposed) engaged in the wall of the pronaos.[b] The Temple of Athene Alea at Tegea, which was built by Scopas, the most celebrated of the Mausoleum artists, was surrounded externally by Ionic columns, whilst the interior had two tiers, the lower Doric, the upper Corinthian.[c] The great temple at Cyrene, which seems from the description of its workmanship to have been about contemporary with the Mausoleum, had a Doric peristyle externally, and within the *cella* a row of Corinthian columns on each side;[a] and the Temple of Apollo Epicurius at Bassæ, which dates from the preceding century, combined a Doric peristyle on the exterior with two rows of Ionic columns within on the sides of the *cella*, and an insulated Corinthian column at its south end.[b]

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[a] Cf. sections in Pls. XXIII. and XXIV.

[b] Dilettanti Society, *Ionian Antiquities*, vol. i. c. iii. p. 52, Pls. IX. and X.

[c] Pausanias, viii. 45, s. 5.

The intercolumnar wall-spaces, the *entredeux* of De la Tourette, I have divided vertically into three rectangular compartments, with a stylobate or dado underneath, each compartment bordered with veneers (*lastres*)[c] of coloured marbles, with fillets (*listeaux*) and moulded edges (*moulures*). Within these borders in the middle row are sunk panels of white marble, sculptured with scenes of combat in half-relief, which De la Tourette describes as carved in the wall itself (*le fonds blanc de la muraille, où ne se voyait qu'histoires taillées, et toutes batailles à demy relief*).

Afterwards, the knight tells us, they found, *outre ceste sale*, beyond or leading out of the principal room, a very low door, through which they passed to the sepulchral chamber already referred to.[d] It is not clear from the word *outre* whether this door opened directly out of the principal room, or was unconnected with it and reached by some other access, but as there is no mention of any other access, I incline to think it must have opened directly out of the room, and was only overlooked at first from the insufficiency of light. For though the knights, on first descending into the room, *prirent de la chandelle*, they are not likely to have carried such a stock of candles with them as to illuminate at once the whole apartment.[e] Accordingly, I have represented the "very low" door as being made in the dado, only 5 feet high, and without architrave or other feature to attract immediate notice. I have also placed it, agreeably to common usage in the disposition of Greek tombs, not in the middle of the wall, but on one side.[f] In the chamber to which this door led, through an intervening passage, as I suppose, were found the sepulchral remains, the gold and costly treasures, which were carried off the night after their discovery, as it was believed, by corsairs. But of the funeral chamber itself De la Tourette gives us no particulars; nor indeed of any other apartment discovered within the basement. Many rooms may have been included within so large a monument, with cells and niches for burial of the family and dependents of the dynasty. But I do not attempt the restoration of anything beyond either what is actually described by De la Tourette, or what seems necessary to explain the location and accessibility of what is so described. To the latter class belong, I think, the hall of entrance,[a] and the staircases leading to the *cella* and tomb below, and to the Pteron above.[b] As the hall would not require that quasi-religious darkness which the ancients thought appropriate for the deceased's actual remains, I have provided for admitting into it the light of day from a source not exposed to what was most dreaded in those times, the danger of sacrilege. For this purpose I have made in the floor of the eastern portico three openings, covered with bronze gratings, to serve as skylights below, and in like manner I have elsewhere placed small grated openings in the pavement, at convenient points, for lighting the staircases which ascend from the entrance-hall to the Pteron.[c] It is not improbable that the hall itself would have been adorned with mural paintings or sculpture, and perhaps furnished with inscriptions, but to attempt even the suggestion of any details of this kind would be embarking on a sea of conjecture quite beyond the present inquiry.

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[a] Smith and Porcher, *History of the recent Discoveries at Cyrene*, p. 71, Pl. LV.

[b] Cockerell, *Ægina and Bassæ*, Pls. XI. and XV.

[c] *Lastra* is thus defined in Ducange, *Glossarium, etc.*: *Vox Italica, tabula lapidea, vel bractea tenuis, quo modo secari solent marmora ad pavimentum vel ad parietes inducenda.*

[d] Cf. Pl. XXIV.

[e] In the design here proposed I have introduced another door on the opposite side of the room, opening to the staircase which descended from the entrance hall (see ground-plan, Pl. XXI.). Whether this also was overlooked by the knights, or whether it was only not mentioned by De la Tourette because nothing of interest was found in or beyond it, it is impossible to say.

[f] At Mylassa this one-sided arrangement was adopted even in the exterior of the building. It occurs likewise in a sepulchre in Rhodes, published by Ross. See Gerhard, *Archæologische Zeitung*, 1850, Taf. xix.

2. The interior of the Pteron cannot in the present restoration be strictly distinguished from the exterior, which has already been described, for the one passes on every side into the other. At the centre of the open space, περισκέπτῳ ἐνὶ χώρῳ, stood, as I assume, the colossal *eikon* of Mausolus, which supplied the motive, not merely in personal sentiment, but in architectural composition, for the whole structure. I cannot indeed cite as evidence any actual relics of this figure, which I regard as what I may call the ὀμφαλός of the Halicarnassian monument. But the reason is not far to seek. Such a figure would, by ancient custom, have

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[a] Cf. the entrance hall in the Rhodian sepulchre referred to in the preceding note.

[b] The two narrow staircases suggested in Pl. XXI. ascend to a converging point shown in the plan, and thence emerge in the broader flight of steps leading to the western portico, as shown in Pl. XXII.

[c] A bronze grating inserted in a pavement slab, and intended for drainage, was found by Sir C. Newton among the foundations of the building. *Travels and Discoveries in the Levant*, ii. 207 (woodcut).

been made of bronze, relieved probably in parts with still more precious materials. It would therefore, as a matter of course, have been melted down by the spoilers of the middle ages, who have left no record of their devastations. The figure sketched in my design, which is introduced solely to illustrate my architectural theory, is purely conjectural in form. It is supposed to be raised on a dais or platform of two steps. Any questions as to the details of its treatment will be more appropriately considered under the final head of the present inquiry, which deals with the sculpture with which the Mausoleum was adorned.

The roof of the interior or central part of the Pteron differs in my design from that of the *cella* in the basement, both in its method of support, and in its own form.

1. The difference of support lies in the bases from which the two roofs rise. Whilst that of the *cella* rests altogether on four unbroken walls, that of the Pteron rests, not immediately, but ultimately, on a group of piers with openings between them. But these piers I suppose to have been all united above by semicircular arches, with radiating voussoirs, which support a level flooring continued without break all round the exterior of the central space, and from this flooring rise the converging sides of the roof, in the same manner as those below. I do not, of course, forget that no radiating arch of semicircular or any other form is found on the exterior of any Greek building of the autonomous age; nor even in their interiors did it ever enter ostensibly into the architectural design. But this was not, in my opinion, due to ignorance or incompetency on the part of the builders. A structural contrivance which was in use in Assyria, in Egypt, and in Rome, long before the period we are now dealing with, could not have been unknown to the Greeks.[a] The reason why it was not made a conspicuous feature in their architecture is to be found in their severe canons of taste. As all the lines of support in their buildings were vertical, and all those of connection horizontal, and consequently all the intermediate openings or voids were rectangular, their architects felt that the introduction of a curved opening and a slanting support would be inharmonious with their predominant principle of construction. That the mechanical value of the radiating arch for distributing superincumbent weight was, to a certain extent, understood by them, is shown by various existing remains, some of an early date, though all indeed on a small

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[a] It is not here intended to assert that the full capacities of the radiating arch, whereby at a later period the whole system of architecture was gradually transformed, and its resources proportionately extended, were known to any nation prior to the Romans.

scale, and, for the reason just stated, confined to positions which were either altogether unseen or unconnected with ornamental design. Thus:

A. At Æniadæ, in Acarnania, gateways are found surmounted by true radiating arches, inserted in the city walls, which are of polygonal masonry.[a]

B. In the theatre at Sicyon are two tunnels passing under the semicircular range of seats, and vaulted with true voussoirs. Through one of these it has been supposed that the tyrant Nicocles escaped from the pursuit of Aratus.[b]

C. The next example I cite with some hesitation, as there is a certain discrepancy, at least apparently, in the descriptions of it. It is a small but interesting Greek tomb at Pyli, in the island of Cos, which is known from an ancient inscription to have been the *heröon* of one Charmylos and his family, and which has a semicircular vault over its central area. Ross has published an illustration of it in section, from which the vault seems to be regularly arched with radiating voussoirs;[c] but Sir Charles Newton, who visited the tomb in 1853, calls it a "horizontal vault."[d] The exact date of its construction is not stated, but it is said to have a front court "decorated in the best Ionic style."

D. An ancient aqueduct, descending from the fountain of Burinna to the town of Cos, appears, from Sir C. Newton's account, to present an example of true vaulting. The water rises from a spring covered by a *tholos* or circular chamber, "probably of high antiquity," and is thence carried through a gallery which is differently roofed in different parts. One part is covered with "an Egyptian vault of advancing stones;" but another part "is built for 48 feet of small blocks, and with a regular arch," that is, of course, with radiating voussoirs.[e]

The arches which I suggest for connecting the eight great supporting piers would be barely visible from below, as the only light that could reach them would be that reflected from the pavement of the Pteron, a long way underneath.[f]

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[a] Leake, *Northern Greece*, iii. 556 *seq.* Cf. *Peloponnesiaca*, 121. Mure, *Journal of Tour in Greece*, i. 106, *seq.*

[b] Blouet, *Expedition en Morée*, vol. iii. Pl. 82, figs. 1, 2, and 4. Plutarch calls these tunnels *ὑπονόμοι*. *Vit. Arati*, c. ix.

[c] Gerhard's *Archæologische Zeitung*, 1850, xxii. 3, 5; here cited from Guhl and Koner's *Life of the Greeks and Romans*, English ed., p. 92, fig. 116, where Ross's illustration is reproduced.

[d] *Travels and Discoveries in the Levant*, i. 242.

[e] *Ibid.* 229, 230.

[f] Since the preceding paragraph was read at the meeting of the Society, I have been assured on good architectural authority that the arches here proposed are really unnecessary, as the openings between the piers are so narrow that the horizontal connecting stones would of themselves safely carry the weight imposed upon them. I retain the arches in my design, however, *ex abundante cautelâ.*

2. The form of the proposed roof differs from that of the *cella* below perhaps even more essentially than its method of support. Whether any precedent can be cited from Greek architecture for the peculiar arrangement adopted depends on the interpretation given to Mr. Biliotti's description of the larger tomb at Cazviri. His words are these, "The two sepulchral monuments at Cazviri are both chambers built in a square hole cut in the rock with pyramidal ceilings . . . . they are formed of stone slabs superposed one over the other, and projecting from each opposite side towards the centre of the room." Thus far his language certainly implies that the two chambers were similar in form, square in plan, and each roofed with a strictly shaped hollow pyramid. He then gives further particulars of the smaller chamber, which prove these conditions to have been actually observed there. But immediately after he says: "The second sepulchre consists merely of a chamber 22 feet 7 inches by 10 feet 9 inches;" that is, is oblong in plan, the length rather more than twice the breadth; and, in proof of the accuracy of these figures, he gives a ground-plan, showing exactly the proportions stated. The walls of the chambers, he says, are 7 feet 8 inches high, and the sloping roof above them seems, from the scale given with his sectional drawing, to be about 9 or 10 feet more. He then continues, "the stones with which the pyramidal ceiling is built rest on the wall; they are generally 6¾ inches thick, and project 2¾ inches one over the other in the interior of the room. There was an aperture of 2 feet at the top." These proportions in the overlapping stones produce a roof of steep slope, which safely covers a space of 10 feet 9 inches, the lateral dimension given above. But if applied to the longitudinal dimension of 22 feet 7 inches without modification, so as to retain the same slope, they leave a vacancy of about 14 feet between the two end slopes at the top. It would be impossible to diminish this space to any considerable extent by increasing the inclination of the slope, as this would involve insecurity in the whole construction. Therefore, if we are to assume that Mr. Biliotti used the word "pyramidal" in any definite sense as applied to this chamber, that is, if he really meant that the roof was formed of four converging slopes, and not merely of two converging and two upright sides, we must conclude that the ceiling was constructed in a method compounded of the two systems already described, the ends being roofed with slopes proper to a hollow pyramid, though widely separated from each other at the top, whilst the intervening part of the chamber was roofed with the two lateral slopes commonly used at the sides of oblong chambers, which here approached at the top within 2 feet of each other. This is the conclusion to which Mr. Biliotti's language would certainly lead me; but I am bound

to state that his drawing gives no indication of any slopes whatever at the ends of the chamber, though their presence seems to me indispensable to any correct description of the ceiling as "pyramidal." Whether or not the compound system here suggested was really that employed at Cazviri, it seems to me perfectly safe in itself; and as it accords well with the oblong form of the pyramid over the Pteron, I have adopted it in my restoration of the Mausoleum. I have assumed an interval of 3 feet between the two lateral slopes at the top; but, instead of the single keystone, which in a strictly pyramidal roof closes the opening, and unites the four sides, I have laid a series of stone crossbeams on the top of the two lateral slopes, with joggle-joints like the keystone at Koul-Oba. The accompanying plan of the ceiling, as supposed to be seen from below (Fig. 13), will best explain its construction.

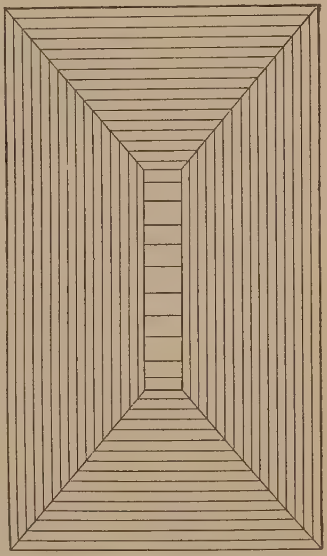


Fig. 13. Plan of the Upper Roof, as seen from the interior of the Pteron.

This completes the description of the interior of the monument, as restored in the present scheme. Above the roof of the Pteron is the space originally filled by the apex of the upper pyramid, and supposed to have been enclosed by Pythis within the pedestal constructed for his quadriga. This supplementary feature has been sufficiently described in the account given of the exterior of the building. In the present design the two statues standing in the quadriga are represented as they are now placed in the British Museum. Any comment on their relative position must be reserved for the paper in which I hope to deal with the only remaining question, viz. What was the most probable arrangement of the sculptures in the original monument?

In bringing to a close this architectural inquiry, which, considering the nature and complexity of the subject, has not, I hope, been thought unreasonably prolonged, I may be permitted to add a few words to distinguish more clearly than before the different degrees of weight which I attach to different parts of my scheme. I adhere decidedly to all those portions of the restoration which are founded on what I hold to be the literal, grammatical, and most logical rendering of the *ipsissima verba* of ancient writers. I adhere less decidedly, but still with much confidence, to those features of the design which are suggested by such analogous Greek or Roman monuments as may be legitimately regarded either as imitations of the Mausoleum, or as sensibly influenced by it. But I do not insist on any portions of the scheme which go beyond the conclusions manifestly deducible from one or other of these two classes of evidence. All such unauthenticated parts must be taken merely as suggestions designed to show how the fragmentary remains now in the Museum *may*, I do not say *must*, be comprised as members in an architectural whole consistent alike with the literary and the monumental evidence just referred to, evidence the results of which are summarily stated in the five cardinal propositions put forth in the preceding paper. I am not myself an architect; nor have I had the benefit of any professional advice in preparing my design. Any technical errors which may in consequence be found in it will, I hope, be freely pointed out with a view to correction. I cannot but fear that I have been somewhat presumptuous in attempting unaided the solution of so difficult and complex a problem. But I have been encouraged by the hope that, even if my restoration does not meet with approval, it may still serve to stimulate some superior hand to work out a more acceptable scheme, founded on just principles of criticism. To anyone who will make the experiment I may, I think, fairly say,

"si quid novisti rectius istis,
Candidus imperti: si non, his utere mecum."

TABLE OF MEASUREMENTS.

A. Vertical Dimensions of the entire Monument.

	feet.	inches.	feet.	inches.	feet.	inches.	
1. Lower Pyramid:							
Plinth - - - - - -			6	6			
Twelve steps, each 1 foot 6 inches high - -			18	0			
					24	6	
2. Podium:							
Plinth - - - - - -	2	0					
Die - - - - - -	21	0					
Cornice - - - - - -	2	3					
			25	3			
Graduated Stylobate of Pteron:							
Lower step (as seen) - - - -	1	9					
Upper step - - - - -	1	0					
			2	9			
					28	0	
3. Pteron:							
Column ($8\frac{3}{14}$ diameters) - - -			28	9			
Entablature - - - - -			8	9			
(25 cubits of Pliny) - -					37	6	49 feet
4. Attic - - - - - -					11	6	
5. Upper Pyramid:							
(Originally.) Twenty-four steps -	24	6					
(As altered.) Eighteen steps -			18	4·5			
Pedestal of quadriga			6	1·5			
	24	6			24	6	
(Total of architectural portion) - - - - -					126	0	
6. Quadriga, including its plinth - - - - - -					14	0	
Total height named by Pliny - - - - -					140	0	

B. HORIZONTAL DIMENSIONS OF THE PTERON.

I. Length from East to West.

	feet.	inches.	feet.	inches.	feet.	inches.
(A.) Octostyle lateral Colonnade:						
From centre to centre of outside columns:						
Seven columniations of 8 feet 9 inches *plus* 1 foot 9 inches in the centre - - - =	63	0				
Half diameters of two outside columns, two (1 foot 9 inches) - - - - - =	3	6				
(Length of colonnade to outside edges of shafts)			66	6		
(B.) Two columniations from colonnade to corners of Pteron, two (8 feet 9 inches) - - - =			17	6		
(C.) Four columniations at sides of front porticoes, four (8 feet 9 inches) - - - - =			35	0		
(D.) Projections of two bases of columns to edges of upper steps, two (3½ inches) - - - =			0	7		
(E.) Projections of two lower steps, two (4 inches) - =			0	8		
(Total length on lower step to exterior of porticoes)					120	3

II. Breadth from North to South.

(A.) Hexastyle Portico:						
From centre to centre of outside columns:						
Five columniations of 8 feet 9 inches *plus* 1 foot 9 inches in the centre - - - =	45	6				
Half diameters of two outside columns, two (1 foot 9 inches) - - - - - =	3	6				
(Breadth of portico to outside edges of shafts) -			49	0		
(B.) Two columniations from portico to corners of Pteron, two (8 feet 9 inches) - - - =			17	6		
(C.) Two columniations at sides of lateral colonnades, two (8 feet 9 inches) - - - - =			17	6		
(D.) Projections of two bases of columns to edges of upper steps, two (3½ inches) - - - =			0	7		
(E.) Projections of two lower steps, two (4 inches) - =			0	8		
(Total breadth on lower step to exterior of colonnades)					85	3
Sum of length and breadth on lower step of Pteron - -					205	6
						2
Totus circuitus on do. (two lengths *plus* two breadths) - -					411	0

TABLE OF PROPORTIONS.

I. "RECTILINEAR" PROPORTIONS.

The heights of the four principal divisions of the building are:

	feet.	inches.
A. Lower Pyramid	24	6
B. Podium and Stylobate of Pteron	28	0
C. Pteron and Attic	49	0
D. Upper Pyramid	24	6
	126	0

These heights bear the following ratios to each other:

A : B :: 24½ : 28 - - - - - - - = 7 : 8
B : C :: 28 : 49 - - - - - - - = 4 : 7
C : D :: 49 : 24½ - - - - - - - = 2 : 1

II. "RECTANGULAR" PROPORTIONS.

1. Pteron (exterior):

	feet.	inches.
The height of the pediment over the portico to the top of its cymatium is 8 feet, which, added to the height of the order (37 feet 6 inches), makes the whole portico	45	6
The height of the columns (28 feet 9 inches) *plus* their stylobates (2 feet 9 inches) is	31	6
The breadth of the portico, from centre to centre of outside columns, is	45	6
The length of the side colonnade, similarly measured, is	63	0

Therefore the heights bear the following ratios to the breadth and length:

	Height feet.	Height inches.		Breadth or length. feet.	Breadth or length. inches.		
Height of portico (with pediment) to its breadth	45	6	:	45	6	=	1 : 1
Height of column *plus* stylobate to breadth of portico	31	6	:	45	6	=	9 : 13
Height of column *plus* stylobate to length of side colonnade	31	6	:	63	0	=	1 : 2

2. Podium :	feet.	inches.
The height of the die, between plinth and cornice, is	21	0
Its breadth, under the portico (being the same as the outside edge of the columns above), is	49	0
Its length, under the side colonnade (being ditto.) is	66	6

Therefore the height bears the following ratios to the breadth and length :

	Height.			Breadth or length.			
	feet.	inches.		feet.	inches.		
(Under the portico)	21	0	:	49	0	=	3 : 7
(Under the side colonnade)	21	0	:	66	6	=	6 : 19

3. Sub-podium under Portico :	feet.	inches.
The height of the die, between plinth and frieze, is	17	0
The breadth is	51	0

Therefore the height is to the breadth in the ratio of - 17 : 51 = 1 : 3.

⁂ It has already been pointed out that the total height of the building (126 feet) was to its length as 1 : 1, and to its breadth as 6 : 5.

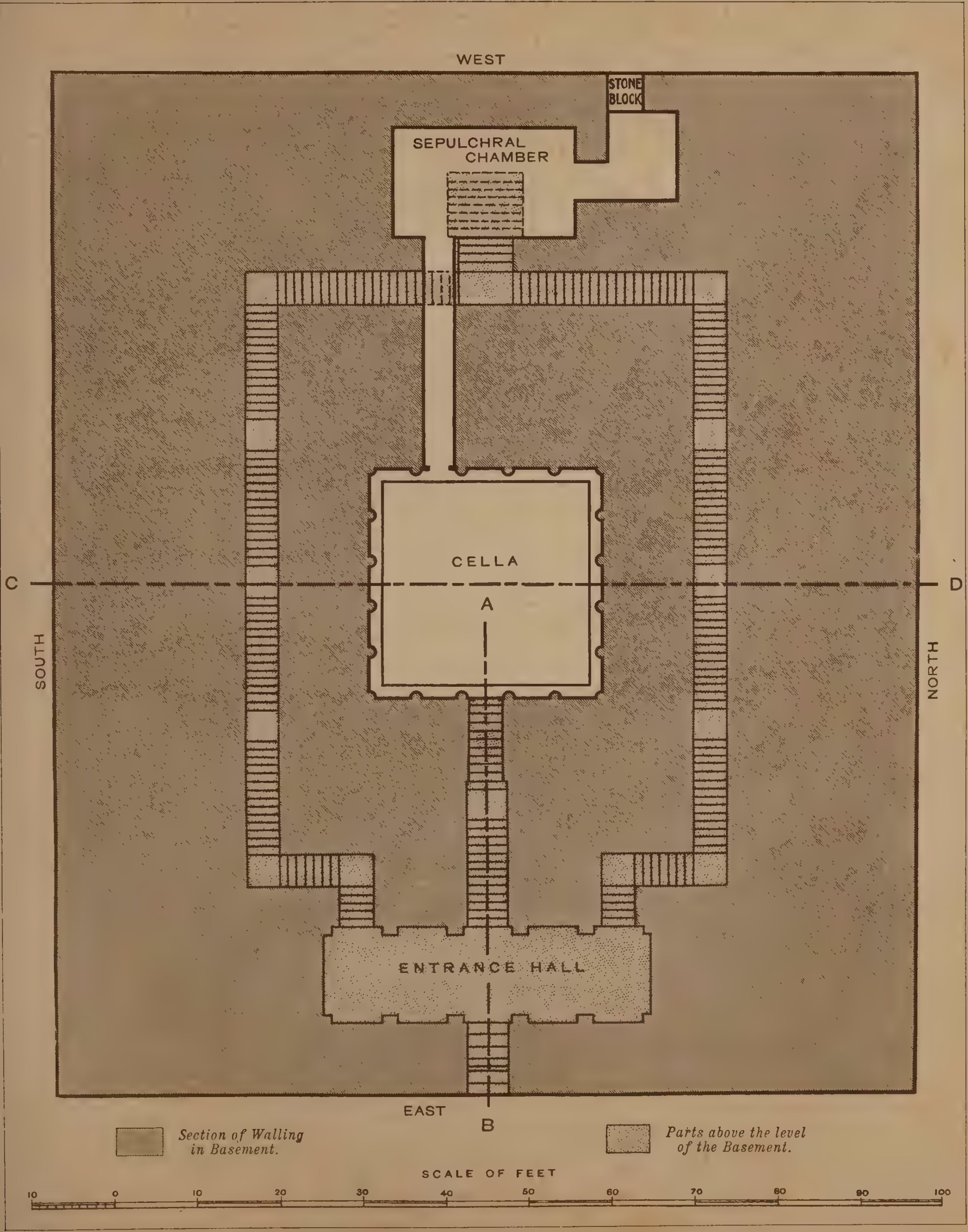
4. Interior of Pteron :	feet.	inches.
The open space from east to west, measured between two opposite engaged pilasters, is	42	0
The open space from north to south, similarly measured, is	24	6

Therefore the length is to the breadth in the ratio of - 42 : 24½ = 12 : 7.

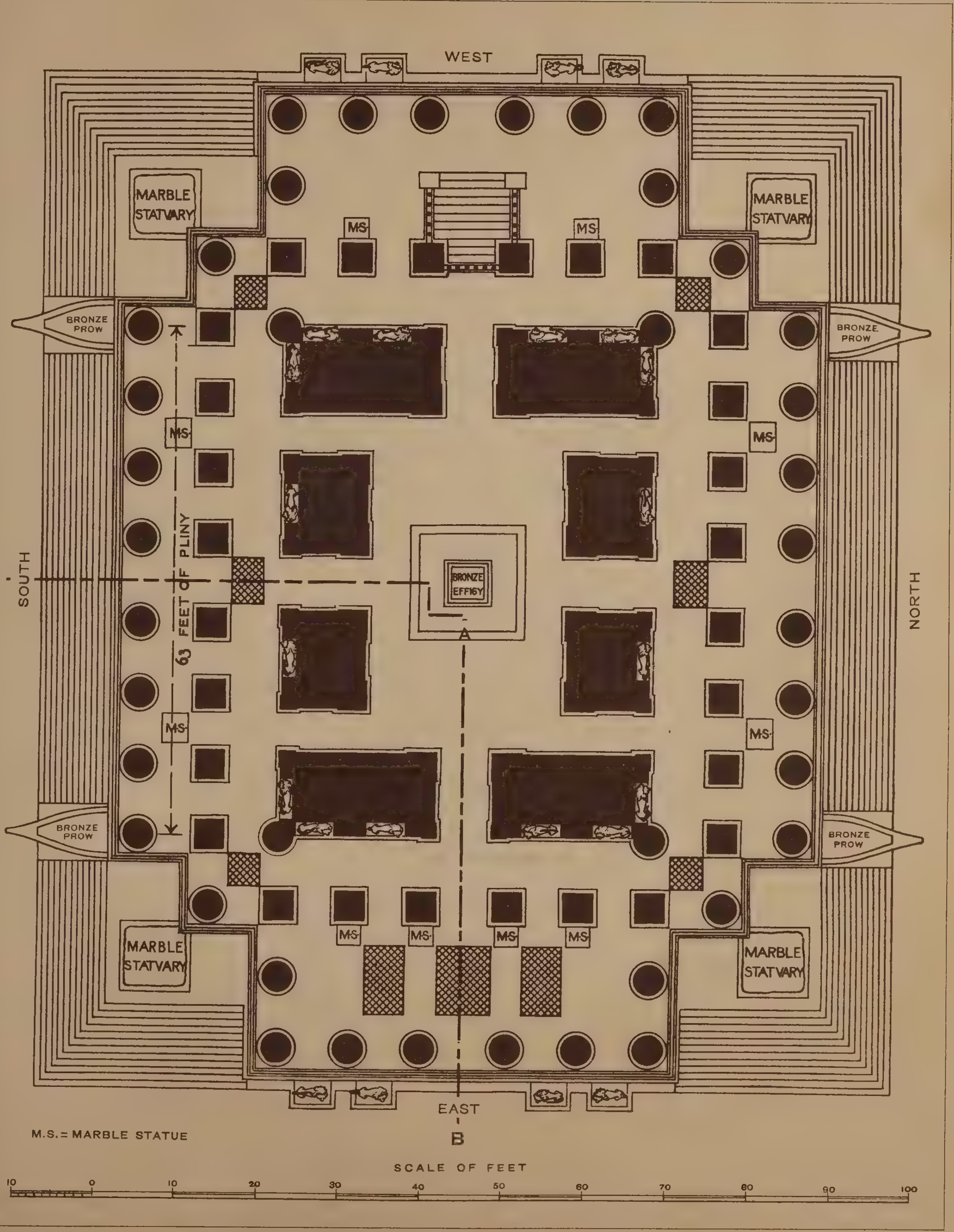
5. Interior of Basement :		
The length of each side of the *cella* is	28	0
The height, to the top of the cornice, is	24	0

Therefore each side is to the height in the ratio of - 28 : 24 = 7 : 6.

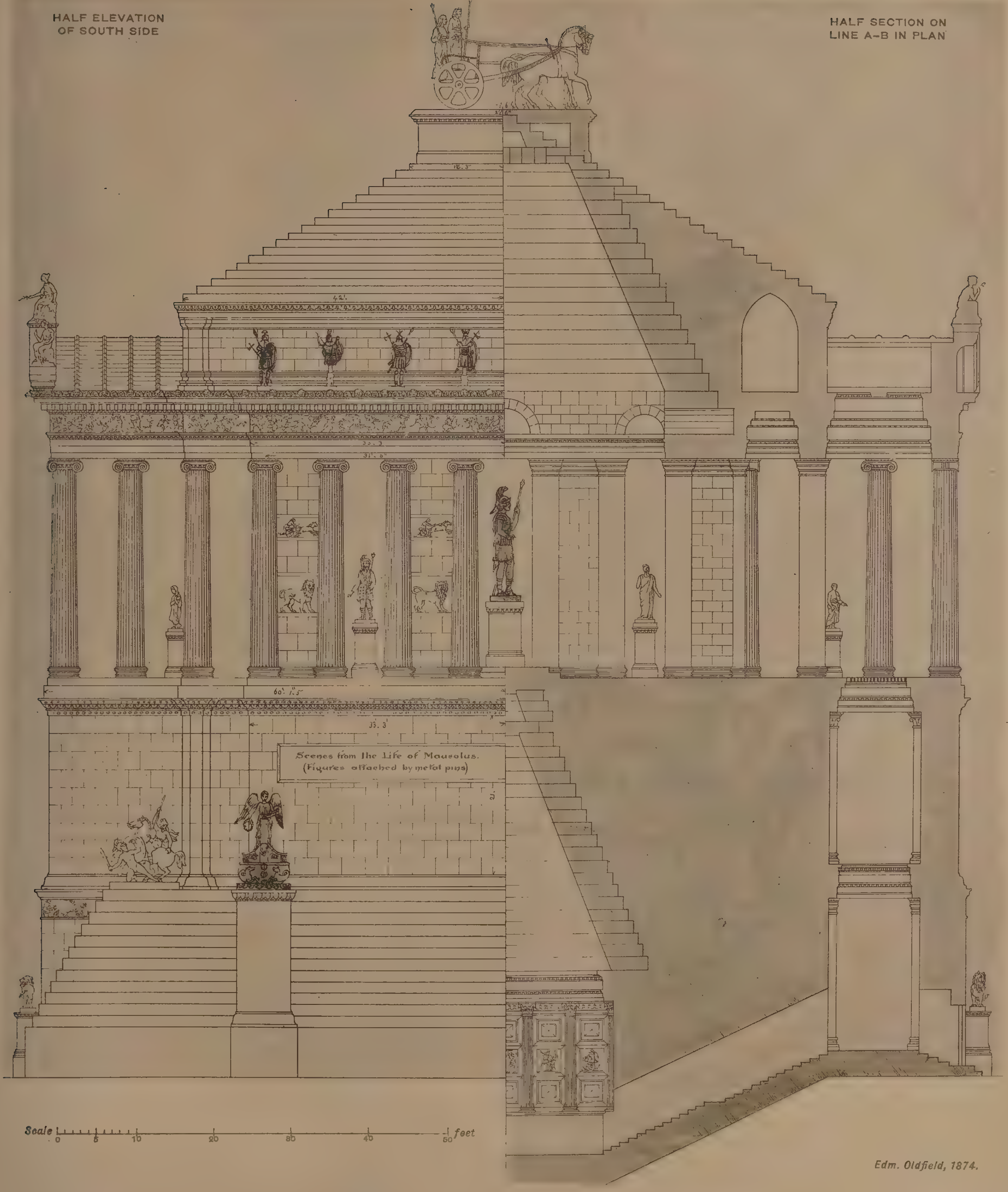
⁂ This table comprises all those dimensions of the building which are most easily compared by the eye, and in which, therefore, the observance of obvious or low proportions is most essential to symmetry. It will be seen that none of the ratios obtained involve any higher figure than 19.



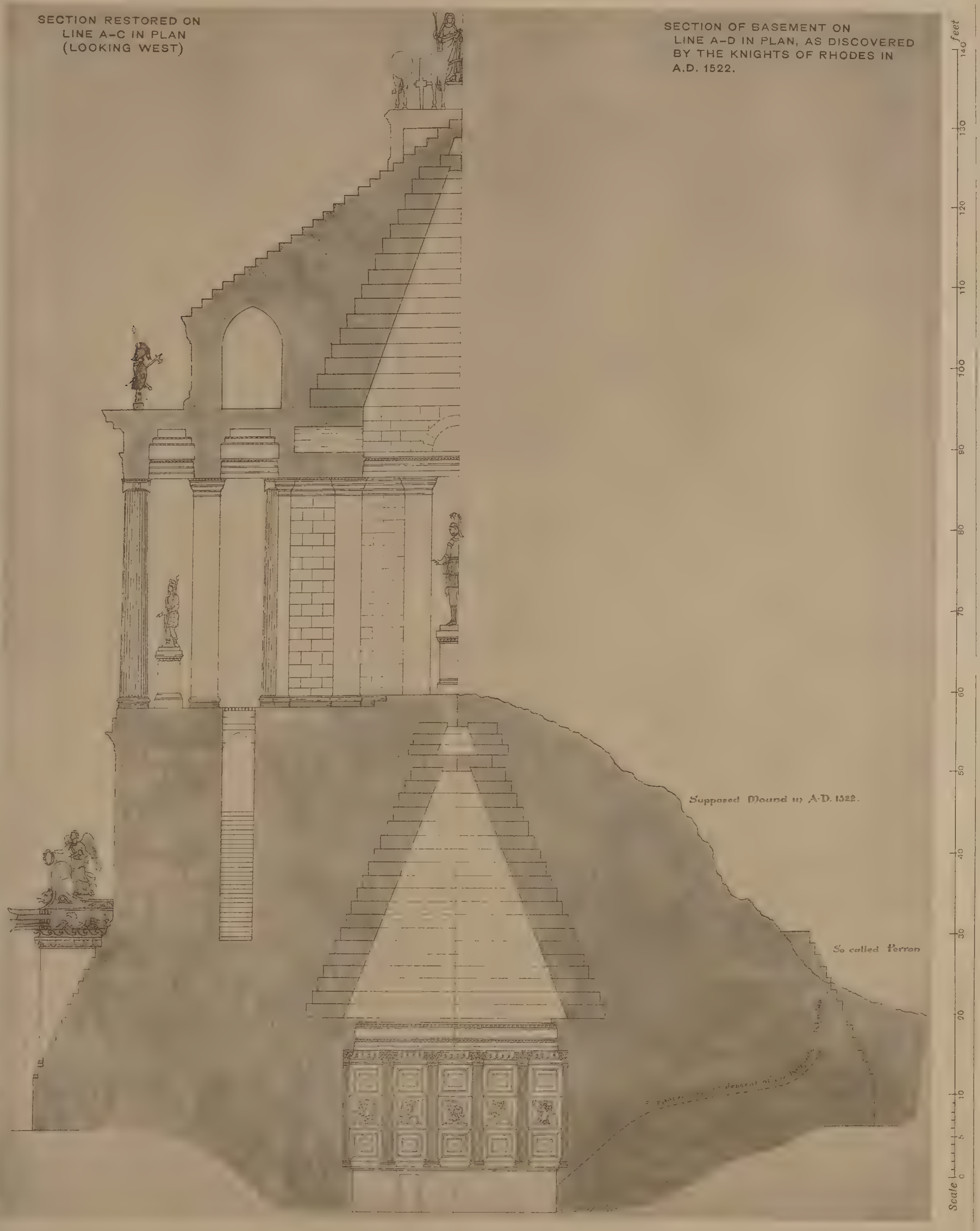
THE MAUSOLEUM AT HALICARNASSUS.—SUGGESTED PLAN OF BASEMENT.



THE MAUSOLEUM AT HALICARNASSUS.—SUGGESTED PLAN OF PTERON.

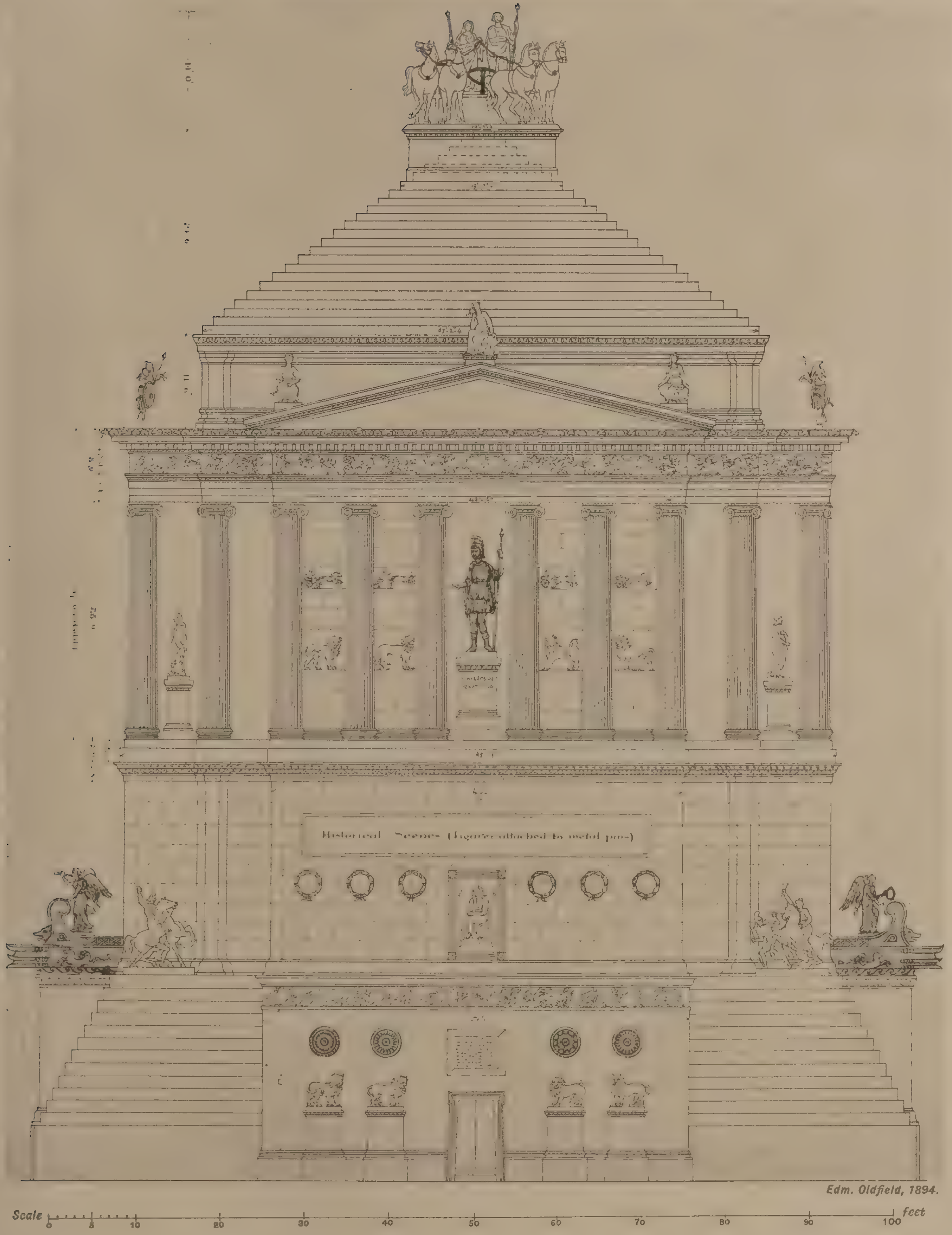

HALF ELEVATION OF SOUTH SIDE
HALF SECTION ON LINE A–B IN PLAN
12. 3"
42'
33. 3
31'. 5"
60'. 1.5
33. 3'
Scenes from the Life of Mausolus. (Figures attached by metal pins)
Scale 0 5 10 20 30 40 50 feet
Edm. Oldfield, 1874.

THE MAUSOLEUM AT HALICARNASSUS.—SOUTH ELEVATION RESTORED.


SECTION RESTORED ON LINE A–C IN PLAN (LOOKING WEST)
SECTION OF BASEMENT ON LINE A–D IN PLAN, AS DISCOVERED BY THE KNIGHTS OF RHODES IN A.D. 1522.
Supposed Mound in A·D. 1522.
So called Perron
feet
140
130
120
110
100
90
80
70
60
50
40
30
20
10
5
0
Scale

Edm. Oldfield, 1894.

THE MAUSOLEUM AT HALICARNASSUS.—SECTION RESTORED.



THE MAUSOLEUM AT HALICARNASSUS.—EAST FRONT RESTORED.

XVII.—*Notes upon two Egyptian Portrait Mummy Coverings or Shrouds, belonging to the First Century A.D.* *By* F. G. Hilton Price, *Esq., F.S.A.*

Read June 8, 1893.

The finest collection of ancient portraits from Egypt that has found its way to England is undoubtedly that brought over by Professor Flinders Petrie in 1889, and exhibited by him in that year at the Egyptian Hall, Piccadilly. It had been found during the previous winter months in the cemetery of Hawara, in the Fayyûm. This fine series of portraits, for such they evidently were, had been painted in wax upon wooden panels, and, according to the opinion of Professor Petrie, had been done after death. They are mostly to be seen in the British Museum and National Gallery, but some are in private hands.

Mr. Petrie informs us that these portraits were found placed over the faces of the mummies, that they belong to the second century A.D., and that the practice of painting these panel portraits was in vogue from about the year 140 to 250 A.D.

It is further stated by Professor Petrie that these portrait mummies were not immediately placed in the tombs when returned from the embalmers, but he infers that they were kept by the families in their houses or private mausoleums, probably for several generations. In support of this he quotes Herodotus,[a] who states that the Egyptians took the mummy away from the house of the embalmers after the period of seventy days had elapsed, which was the usual time devoted to the preparation of a mummy; it was then placed in a wooden case in the shape of a man and stored in a sepulchral chamber, setting it upright against the wall.

From this we must gather that the tombs were the receptacles for the mummies, for in the days of Herodotus the Egyptians followed their old customs, they being most conservative in their habits, and strenuously avoiding anything that was new or foreign. The custom of keeping mummies in their private houses unburied probably had not come into fashion in his day. Diodorus refers to the custom, and I think we may suppose that the practice did not come into vogue earlier than during the late Ptolemaic period, and that it was adopted by the Romans.

The Emperor Hadrian visited Egypt about the year 130 A.D. and is stated to have encouraged the Greek style of portraiture.

[a] Book ii. 86.

Now it may be surmised that in the middle of the third century A.D. a great change had come over the manners and customs of the Egyptians, who had by this time become more or less habituated to the ways of their Roman conquerors, so that the old practice of keeping the family mummies at home appears to have become distasteful to them and was abandoned when they adopted the new-fashioned mode of burial. In consequence of this change the collections of family mummies which had been kept unburied for several generations were now regarded as being very much out of place, so were accordingly consigned to the tombs.

They do not appear to have received honourable burial, for in some of the old tomb wells that Mr. Petrie opened in the Hawara cemetery he found large quantities of these family collections of mummies, some with gilded cartonage faces, and some with the portraits affixed to them, all indiscriminately thrown pell-mell in the utmost confusion, without any care having been bestowed upon them. Some were head first and some feet first in these old tomb wells or other tombs, and so eager did the relatives appear to get them out of sight that when any of them were found to be too large for the receptacles, they broke off either the head or feet in order to squeeze them in.

Having made the foregoing remarks upon the panel portraits by way of introduction, I will now proceed to refer to the two specimens before us, which are from my own collection.

The larger one, that of the woman (Plate XXVI.), was found at Aḥmîm, the Panopolis of the Greeks, a place which had been known as Chemmis in the times of the ancient Egyptians. It was brought to England by the late Reverend Greville J. Chester, who had bought it of an Arab at Aḥmîm, but he could not obtain any trustworthy account of how and under what conditions it was found. It is a mummy covering or shroud of fine flax linen, painted in *tempera.* I believe I am correct in assuming that such portraits on linen or canvas are of earlier date than those done on panels in wax, and that this example may fairly be considered to have belonged to a Græco-Egyptian mummy of the first century A.D. It measures 3 feet 10 inches by 2 feet 10 inches, and represents a female figure of considerable beauty; the rest of the painting is conventional.

The lady has dark hair and eyes, wears ear-rings, and is draped in mummy clothes of purple colour, with a deep collar of bead-work round her neck and breast. In one of her hands, which protrude from the wrappings, she holds a crook, and in the other a flail, the emblems of power and dominion that were always worn by Osiris, the great God of the dead.[a] Below each shoulder is a hawk with outspread wings wearing the disk upon its head, holding by its feet to a ring.

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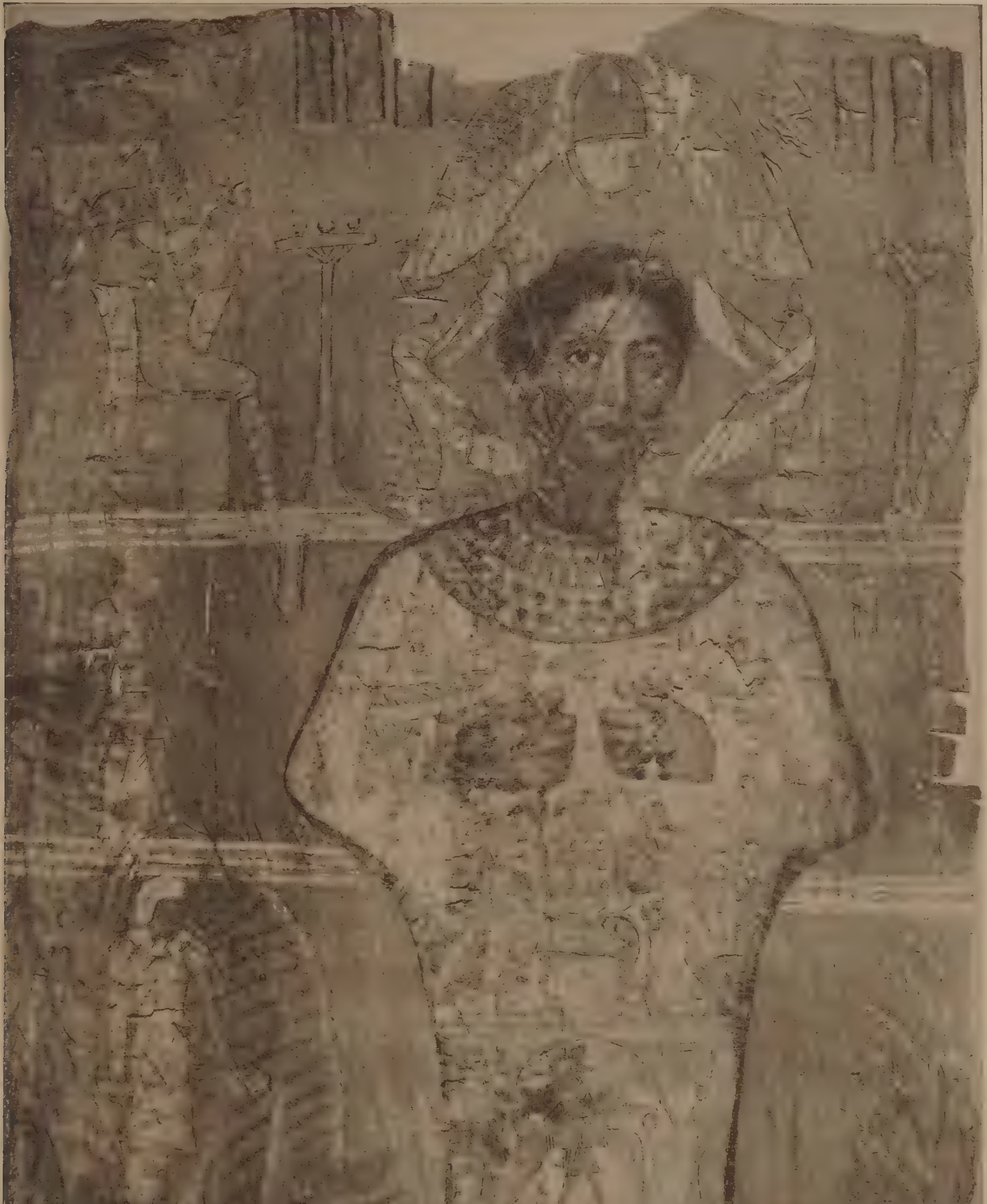
[a] A deceased person was called the Osirian, that is to say, dead in Osiris.



EGYPTIAN MUMMY PORTRAIT OF THE 1ST CENTURY, A.D.

Beneath the necklace, on the centre of the breast, is the figure of an Ibis walking, emblem of the God Tehuti or Thoth, the measurer, scribe of the gods, judge of the dead, inventor and patron of arts and sciences; he typified the moon, and was also called Hab, or the messenger.

Below the hands is the disk of the sun, whilst under it are nine triangles, arranged in threes, representing the rays of light from the solar disk. Upon each side of these is a Ut'at or mystic eye, which is composed of the eye with the appendage in front, called the drop; it is supposed to be the eye of the cow of Hathor, and the drop is intended to represent the fluid which exudes from the eye of the cow. The two eyes are the eyes of the sun, and are sometimes personified by Shu and Tefnut, the two children of Seb and Nut. The Ut'at is sometimes called the eye of Horus, one being in the morning boat, the other in the evening boat, of the sun. The right eye also symbolized the sun, and the left eye the moon. Shu and Tefnut typified air and sun-light respectively.

In the next division is a bier, in the form of a lion, with a mummy placed upon it, on each side of which is a human-headed hawk or soul, and below it is another representation of the mummy on the bier, attended by Anubis, with Isis and Nephthys at each end pouring libations over the mummy.

Anubis, who was called Ȧnpu in Egyptian, was the god of the dead, and as such is usually coloured black; he is jackal-headed, and wears a tunic round his loins. He typified the dusk or twilight, and was the son of Rā. At the head of the bier stands the goddess Isis, Ȧuset in Egyptian; she was a daughter of Seb (the earth) and Nut (the sky), and was wedded to her brother Osiris before they were born. She was the mother of Horus, the sun in his strength, and typified both the dawn and the sunset; here she is represented clothed in a long garment and wearing a crown upon her head.

At the foot of the bier is Nephthys or Nebt-het, who was also a daughter of Seb and Nut, and sister of Osiris and Isis, wedded to Set, the darkness. M. Renouf, in his Hibbert Lectures, p. 112, states that there are traces of a legend according to which Osiris mistook Nephthys for Isis, his wife, as the result of which she became the mother of Anubis, the dusk; thus Nephthys typified the sunset, was sister of the sun and the dawn, was married to darkness, and was mother of the dusk. She was also styled "Eye of the Sun," regent of the gods, mistress of heaven, and of women.

On this mummy-cloth she is depicted as wearing a long garment, probably with the house and basket upon her head, from which she takes her name, *i.e.*, Nebt-het, the "lady of the house."

The cloth has three horizontal blue lines painted upon it, with white spaces between, which probably represent the linen straps which were bound round mummies in earlier times. The first ends even with the shoulder, the second with the elbows, and the third below the vignette of Anubis and the bier. On the left hand side of the first division is Osiris or Àusar, seated on a throne before an altar; he was the eldest son of the five children of Seb and Nut, *i.e.* of the earth and sky. As we have already remarked, he wedded his sister Isis, in his mother's womb, before they were born. He is always represented wearing the Atef crown upon his head and as bandaged like a mummy, generally in a standing position, holding in his hands, which protrude from the wrappings, the flail and crook, emblems of rule and dominion. He typified the sun of yesterday, who was slain by his brother Set, the night or darkness, and who in his turn was vanquished by the young Horus or the rising sun.

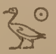
On the right hand side, which is imperfect, is seen only the leg of another seated figure facing an altar.

Above the head of the portrait of the woman is a flying scarabæus, emblem of the Resurrection, and upon each side of her face is the winged serpent or uræus erect upon its tail, generally considered to be an emblem of the goddesses Isis and Nephthys, resting upon a basket. Upon the head of one is the white crown of Upper Egypt, and upon the other the red crown of Lower Egypt. At the top of this division are six blank lines arranged vertically for the insertion of names, which have been omitted.

In the second division is Rā, the principal deity of the Egyptian pantheon, the great sun god and the usual name for the sun.

In contradistinction to Osiris, who was the sun of yesterday, Rā is the sun of to-day; he was the creator of gods and of men, and the solar orb was said to be his egg, which was always taken as his emblem. He is supposed to have emanated from Nu (the sky), the father of the gods; his mother was Neith, the dawn in her type of the cow.

Mr. Renouf, in the Hibbert Lectures, p. 109, says, in the legend of the destruction of mankind, that Rā calls before him Shu, Tefnut, Seb, Nut, and the fathers and mothers who were with him when he was still in Nu.

The kings of Egypt for the most part bore the title Rā in their prenomens, but all of them were styled  Se Rā "Son of the Sun."

Rā in this picture is represented hawk-headed and wearing the disk, holding in his left hand a kukufa sceptre, and in his right the anch, or emblem of life. He is in the attitude of walking, and has a tunic and a lion's skin round his loins, and a collar or necklace round his neck; he also wears a wig. In front of him are two vertical lines enclosing a space for his name, which has been left blank.

On the opposite side was a similar figure, but now only the kukufa sceptre and a hand remain to tell of the god that was figured there; on the left are two vertical lines with a space for the insertion of the name.

In the third division is Hathor, or perhaps Nut, in the midst of the sycamore tree. The scene of Nut in the sycamore is the vignette in the 59th chapter of the Book of the Dead, entitled "A chapter of drinking the water in Hades." Hathor or Het-heru, "the abode of Horus," was styled Lady of Heaven, Lady of the Sycamore, and many other titles; she was the daughter of Rā and mother of Horus, and typified the dawn and the evening twilight. She is identified with many goddesses in different nomes of Egypt. In this picture we see her wearing a blue wig, and a necklace upon her breast, and a long garment reaching to her ankles. In her right hand she holds a wand or sceptre, and in her left a libation vase, from which she pours a stream of water that is being caught in the hands of a human-headed hawk, emblem of the soul, Bā.

The translation of the chapter as given by the late Dr. Birch in *Egypt's Place in Universal History*, Bunsen, vol. v., is:

"Oh! Sycamore of Nu(pe)! give me the waters which are in thee. I am the one who took the place in the midst of the hour, guarding the egg of the great cackler;[a] I grow, it grows again; I live, it lives again; I breathe, it breathes again." M. Renouf[b] considers that this sycamore tree, which yields both wind and water, is no other than the rain cloud.

On the opposite side is the figure of a woman standing, probably intended also to represent Hathor or Nut in the Persea tree.

This piece of cloth is far from being the complete shroud or covering of the mummy it enwrapped, but fortunately enough of it remains to exhibit the skill in portraiture of the artists of those times; apart from the head the remainder of the picture is purely conventional.

The other specimen that I have to bring before your notice is a smaller piece of yellow flax linen, portion of a wrapping of a mummy; it measures 25 inches by 24 inches, and it came from Thebes.

Upon the top are two horizontal lines, between which is a line of hieroglyphics, which are continued vertically down the left-hand side of the cloth; it contains the name and history of the deceased Ret-Heru-seshet-f. The upper part of the left-hand side is occupied by the solar bark, in which the youthful Horus or Harpacrat is seated upon a lotus-flower in the centre of the sun's disk, thus symbolizing the rising sun; in front of him is the standard of Horus, in the form of a human-headed lion wearing the atef crown; upon the top of the paddles or oars is the hawk-head of Horus.

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[a] When the sun rose it was said the great cackler or goose had laid an egg.

[b] Hibbert Lectures, p. xiv. Preface.

Beneath this are the figures of Thoth, Sau, Sechhet, and Maāt, all in the attitude of walking, with their names placed above them, but these, being badly written, have become illegible. They are arranged between vertical and horizontal lines, in spaces coloured red and yellow alternately.

Tehuti or Thoth, the scribe of the gods, the measurer, said to be self-produced; he typified the moon. He is Ibis-headed and wearing the disk of the moon, with a yellow head covering; his flesh is green and his arms are pendent. He wears a red body garment and a tunic and leopard's skin round his loins.

Sa or Sau, is a form of Rā. He is here represented as wearing a very unusual head ornament, which is one of the hieroglyphics forming his name; he is hawk-headed, has a large black head dress, pendent arms, a collar round his neck, yellow flesh, and a red garment with a leopard's skin round his loins.

Sechhet, beloved of Ptah, typified the fiery dawn. She is shown as lion-headed, wearing the disk of the sun with a uraeus in front, a large head dress, and a collar round her neck; her flesh is coloured yellow, the arms are pendent, and she wears a long blue garment which reaches to her ankles.

Maāt, goddess of law, was daughter of the sun and lady of heaven. She is human-headed, wearing a large yellow head-covering, in which is the plume, the emblem of her name; a necklace hangs about her neck, her flesh is coloured black, the arms are pendent, and she wears a long red garment reaching to her ankles.

Below is represented the deceased in the form of a mummy, supported and held up by Anubis, the god of burials, wearing the jackal's head, with black flesh tints and yellow head covering, bringing him into the presence of Rā, who is here in the rôle of Osiris, wrapped as a mummy. He is hawk-headed and wears the atef crown and a large head covering, and is here described as the great god, lord of Thebes. He holds the kukufa sceptre with both hands. On the right is a priest whose colour is red, wearing a tight-fitting yellow skull cap and a tunic round his loins, standing pouring a libation from a yellow or perhaps a golden vase over the head of the Osirian or deceased. Above this vignette are two horizontal lines of hieroglyphics, bearing the names of the deceased, the upper space being yellow and the lower one red.

The right hand side of this cloth is occupied by a well-executed portrait of Ret-heru-seshet-f, son of Heruxuti, who has a closely shaven head and face, coloured red. Above his head is a flying scarabæus, emblem of the Resurrection, around his neck he wears a deep collar, and upon his right shoulder is the figure of a hawk with expanded wings; the remainder of the figure, together with the rest of the wrapping, has not been preserved.

This probably also belongs to the first century A.D.

XVIII.—*On Excavations in a Cemetery of South Saxons on High Down, Sussex.*

By CHARLES HERCULES READ, *Esq., Secretary.*

Read November 30, 1893.

IN the autumn of 1892, Mr. Edwin Henty, in planting trees on his property on High Down Hill, in the parish of Ferring, in Sussex, came upon a number of graves, which, from the character of the relics found in them, were readily determined to be of Saxon origin. Mr. Henty has carefully preserved all that he could secure, but from the unfortunate accident that the men employed in the work were strangers, and not his own workmen, there is reason to believe that a number of the articles found were disposed of to visitors and others.

This, in addition to the fact that no record could be kept of the contents of the individual graves, makes the finds of last year very much less valuable than they would otherwise have been.

There is only one object among them that deserves special mention from its great rarity in this country. (Fig. 1.) This is an example of the *angon*, the barbed iron spear of the Franks. That its use as a weapon was more common among the Franks and Burgundians than among the Saxons is borne out by its more frequent occurrence in the graves of the former peoples.[a] In England it is so rare as to be

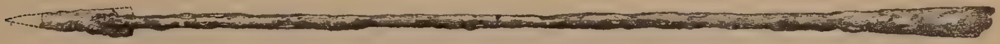

Fig. 1. *Angon* or barbed iron spear-head. ($\frac{1}{8}$ linear.)

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[a] L. Lindenschmit, *Die Alterthümer unserer heidnischen Vorzeit*, iii. Pl. v.

almost unknown. Mr. Roach Smith figures one found at Strood, in Kent,[a] and a similar weapon from the Roman Wall. The *angon* and its near relative the *pilum* have been treated at considerable length in *Archaeologia.*[b] The High Down specimen is 2 feet 5¼ inches in length, with a circular socket and with the barbs lying close to the stem.[c]

Before continuing the planting this year, Mr. Henty, through the kind offices of a mutual friend, invited me to superintend the digging, leaving me a free hand to direct the men to dig where and how I pleased. The men were willing and much interested in the matter, more particularly as local tradition tells that buried in High Down lies a golden calf. This, I may say at once, is one of the things we did not find; but all the objects that were found in the graves this year, as well as a selection from those of last year, are shown to-night by the kindness of Mr. Henty, who has brought them all up to town that they may be laid before the Society.

High Down Hill lies about one mile nearly due north of the village of Ferring, and about two from the sea, the land between the base of the hill and the shore being flat. Upon the top of the hill is a camp, oblong in form, with an opening at the south-west corner, and it is within this camp that the cemetery lies.

The planting last year was in an oblong at the south-west end, not quite parallel with the lines of the camp, and the continuation of the work this year was in the ground lying on the north side of the fence put up to protect the young trees.

In the *Journal of the British Archaeological Association*[d] for 1857 an account is given by Mr. George V. Irving of excavations made by him at Cissbury and High Down. He dug pits in the north-west corner of the camp on High Down and found only a miscellaneous collection of objects, many of them very recent in date. He does not appear to have tried the ground anywhere else within the camp.

In 1867 General Pitt-Rivers (then Colonel Lane Fox) made an extensive series of excavations at Cissbury, and also dug a pit at High Down, somewhat to the east of the middle of the south side, and within the escarpment. His account is printed in *Archaeologia,*[e] where a plan and section of the camp are given.

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[a] *Collectanea Antiqua*, vol. v. Pl. XI. This specimen has since been acquired by the British Museum with other antiquities from Mr. Humphrey Wickham's collection.

[b] Vols. xxxiv. 177; xxxv. 48; xxxvi. 78; *pilum*, xlii. 327.

[c] A weapon of similar character 1 foot 8 inches long, found in the Thames, is in the British Museum; and two *pila* from Hod Hill are in the Durden Collection, now in the same institution.

[d] xiii. 274.

[e] xlii. 27.

Here he found a very curious square pit cut in the chalk rubble, with a smooth floor, and steps leading down to it on all sides; at the south-east corner was a bronze knife-dagger, of which a figure is given on Pl. VIII. of his paper, and at the north-west corner a skeleton extended north-west and south-east. This interment has probably no connection with our cemetery from the direction in which the skeleton lay, but it is curious that, although the inside of the camp has been twice dug into, neither of the investigators chanced to find the Saxon cemetery.

I should mention that General Pitt-Rivers' paper aims at proving that the camp on High Down, as well as others in Sussex, is not of Roman, but of British work, the square form found here and elsewhere being due to the form of the hill top.

There are remarkable discrepancies in the form of the camp as given by Mr. Irving and General Pitt-Rivers, and my own plan, though nearer to that of General Pitt-Rivers, is not quite like either. The one I have made is however merely an enlargement of the 25-inch Ordnance map, and I am not responsible for the form, though it agrees with my observations.

On the morning of the 31st October I began work and found that the workmen had already found one grave (I.), which, however, contained nothing but the skeleton, and that was much decayed.

The next (II.) was more fruitful. Upon the breast were three brooches of bronze gilt, the pins of all three of iron, one on each shoulder and a third near the middle. The two smaller were 1·7 inch in length, with a large oblong plate at the upper end, and a small one at the lower; the middle is somewhat cruciform, with deeply engraved design, probably intended as a conventional representation of two eyes. The larger brooch is 1·36 inch long, of similar outline, but the ornament of the surface is of a different character, recalling the interlaced monsters of a later time. The two conventional eyes, in a modified form, are also found upon this brooch. Nothing remained between the breast and the hips, but here was found a neatly made, though plain, buckle of bronze, slightly plated with tin, and around it a mass of soft clayey matter, which no doubt was all that remained of the leather belt to which it was attached. On the right hip was an iron ring 2·2 inches in diameter, and a small iron knife was lying transversely across the right wrist. On the right humerus were three irregular beads of amber, 0·84 to 1 inch in diameter, and one of the well-known "melon" beads of pale blue porcelain. But the most curious thing was that, in removing the skull, I came upon another pair of brooches, 1·22 inch in diameter, one under the chin and one on the left shoulder. These were circular, saucer-shaped, and of bronze gilt on the upper face, which was deeply engraved with a continuous loop-coil around a central ring. They are 1·22 inch in diameter, and have pins of iron like the others.[a]

The next grave we found (III.) contained only the skeleton and an iron knife lying across the left arm. The following one (IV.) was very little richer, though its greater depth, 4 feet 6 inches, led us to expect better results. It contained only an iron buckle 1·88 inch wide, and a spear-head lying beneath the head, and a tiny bronze mount formed of two plates connected by two rivets. Grave V. contained a spear-head only, 7⅛ inches in length, near the head. The next grave (VI.) was more gratifying. Under the left hand was an iron knife, and on the same side, from the waist downwards, lay a sword of the usual type, broad, straight, and double-edged, 2 feet 9¼ inches in length, and having on the surface, when first exposed, considerable remains of the wood of which the scabbard was made. At the pommel was a short cross-bar, and where the mouth of the sheath had been, a flat bronze mount. At the waist, in front, was a richly engraved buckle of bronze, gilt, with the square plate which ornamented the strap at the back of the buckle. This plate has four rivets at the corners, about ⅛ inch in length, and these were covered with the remains of the leather strap, as was also the buckle itself. At the base of the tongue of the buckle is a square setting, now empty; it probably contained a garnet or glass paste, but no signs of either remained. From the position of this buckle there can be but little doubt that it belonged to the sword-belt. (Pl. XXVII., fig. 7.)

At a depth of 4 feet we came upon the skeleton in the next grave (VII.), and upon the breast, just under the chin, lay a circular bronze brooch, 2·27 inches in diameter, formed of a thin plate, with a circular opening in the centre, in which worked an iron pin, now almost entirely rusted away. Although this opening is only ·7 inch in diameter, the pin was 1·2 inch long, the point passing through a slot cut in the edge of the brooch, and on each side of this slot projects a small rivet, which, when the brooch was in use, prevented the pin from entering the slot and thus unloosing the garment. The upper surface of the

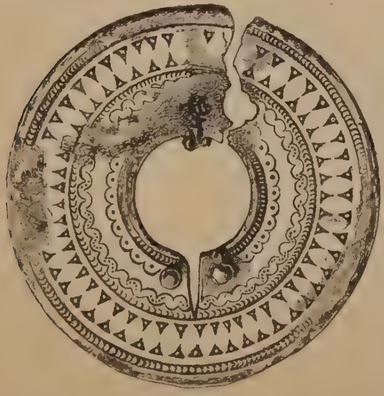

Fig. 2. Bronze brooch found in Grave VII. Full size.

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[a] A brooch of the same design found at Perlberg, Hanover, is figured in J. H. Müller, *Vor-und frühgeschichtliche Alterthümer der Provinz Hannover.* 1893. Pt. xxii. fig. 212.

brooch is coated with tin and is ornamented with concentric circles produced by punches of three different designs (fig. 2). Across the pelvis was a string of beads, two of them of clear greenish glass ·8 inch and ·75 inch in diameter, and three of amber, rudely shaped, and measuring ·64 inch, ·7 inch, and ·72 inch in diameter. Apparently in the middle of the string of beads was a thick circular disc of gypsum 1·42 inch in diameter and 0·64 inch thick, with a hole through the centre, and near by was a small fragment of the edge of a wooden bucket, with the bronze mount still upon it. How this came to be there I cannot tell, for no trace could be seen of any other parts of the vessel. The bones of this skeleton were much decayed, many of them had entirely disappeared, in fact; but what remained might well be those of a female, which the presence of the gypsum spindle whorl, for that is what I take it to be, would bear out.

The next grave (VIII.) was shallower than usual, being only 2 feet 10 inches deep, and it was the only instance of a body placed otherwise than flat upon its back. It contained the skeleton of a tall man lying upon his left side, with the legs bent, the right arm behind him and the left across his breast, while the chin was upon the right shoulder. That it was a regular burial was shown by the presence of a small pottery cup near the shoulder. It was so friable, and the ware was so intermixed with thread-like roots, that it fell to pieces, but the patient care of my colleague Mr. Griffith has restored it to its original form (fig. 3).

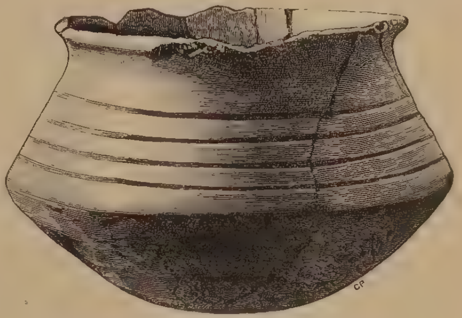

Fig. 3. Pottery vase found in Grave VIII. $\frac{2}{3}$ real size.

The next grave (IX.) contained but few relics. Near the right hand was a string of small glass beads about $\frac{1}{3}$ inch in diameter, eighteen of clear sapphire colour, ten, much oxidised, of brown glass, and a single flat melon-shaped bead of dark-coloured glass. At the waist was an iron buckle-like object, very much corroded, and having a thin bronze plate attached to it. On one finger of the left hand was a ring, made of a band of bronze, with a flat plate as a bezel, and engraved herring-bone pattern on each shoulder. A second ring of silver, penannular, was found close by the left hand, but I am not sure whether it came from one of the fingers or not. On the right thigh was lying an iron knife, and near the right arm a bronze bodkin or pricker 2·94 inches long.

Grave X. contained the body of a youthful person. At the waist was a small plain buckle of bronze, and a much-worn Roman bronze coin of Domitian pierced for suspension. On the right arm was a thin bronze wire bracelet 1·7 inch by 1·95 inch, and at the neck a string of beads, a large one of clear yellowish glass 0·88 inch in diameter, one of amber 0·54 inch wide, and nine small ones like those in the last grave, three of them sapphire blue, three of sulphur yellow paste, and three of opaque white; and among them a small bronze coin of Fausta, wife of Constantine the Great, struck at Trèves about A.D. 325; also pierced for suspension.

The next Grave (XI.) contained no remains beyond the skeleton.

In Grave XII. occurred one of the most charming pieces of bronze work that I have ever seen from a Saxon grave. (Pl. XXVII., fig. 8.) It is a small slide 1·84 inch long by 0·90 inch wide. The raised part of the slide is engraved with a lozenge design containing a cruciform object, and the corners are filled up with engraved spirals, and the remains of a silver outline remain round the edge of the lozenge. The two flat ends, by which it was attached to some other object, are pierced to represent two heads of monsters; the form of the necks being accentuated by a silver inlay. This was found lying upon the left side of the chest, and in such a position I cannot imagine what use it served. Had it been near the hips it would have been taken for the slide for the sword-belt on the scabbard of the sword; but in this grave there was no trace of a sword. On the other side of the chest lay a bronze brooch of uncommon type, with, as usual, a pin of iron. The form is not easy to describe, but it has no trace of gilding, the only decoration being five concentic circles. (Pl. XXVII., fig. 4.) Between this brooch and the slide was a mass of rusted iron, about the size of a walnut when first found, though its size has dwindled since, and in the middle of this was a piece of white bronze shaped exactly like the common paper fastener of to-day, in the form of the letter T. What this represents I cannot say.

Grave XIII. made a poor return. We found only an iron knife and a ring near the left humerus. But the following one (XIV.) was far more satisfactory. As soon as the men had got near to the level of the body I began to clear away the chalk at the head, and over the right shoulder appeared iron rust, indicating the presence of a spear-head. In working round this I found that it was lying across the mouth of a glass bowl, which rendered the task a far more delicate one. The spear-head was a good size, 11 inches in length, and the glass turned out to be a mammiform bowl very thin and ornamented with bands of delicate threads. The surface was somewhat oxidised, and coated inside and out with a film resembling in colour the crust of port wine. I think now that this film has been produced only by the decay of the glass, and not by the presence of any liquid in the vessel. (Pl. XXVII. fig. 3.) Close by the right humerus was a little bronze pin or awl, an iron knife, and an iron object (fig. 4) that I have called a steel for striking fire, for in the mass of rust I found a little piece of flint. I came to the conclusion from the condition of these objects, which were all lying in a mass, that they had all been enclosed in a leather pouch, and that this had perhaps been hung round the neck or from the dress by a strap. Somewhat above them were a few tiny bronze rivets, and small hemispherical caps which had no doubt concealed the heads of the rivets.

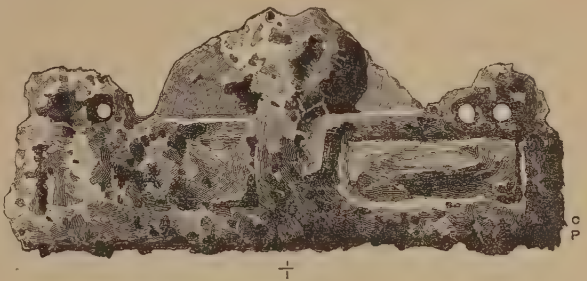

Fig. 4. Steel for striking fire. From Grave XIV. Full size.

At this point I was obliged to leave the work, and the remaining graves have been excavated under Mr. Henty's superintendence, with the most excellent results.

Grave XV. was that of a child and contained only a few beads, seven of them of sapphire blue glass, one of amber, and a larger one of glass with a zigzag in white. The next grave (XVI.) was a very shallow one, the skull being only 14 inches from the level of the turf. Just below the jaws, and lying on the collarbone, was a pair of flat circular bronze brooches, with concentric circles of dots, and the surface tinned; the pins both of iron. Beside the left arm was lying a string of sixty-nine glass beads, the greater part of them of the usual sapphire blue, nine of pale, clear yellow glass, two of opaque yellow, and four large ones of clear greenish glass (0·8 and 0·58 inches in diameter) which formed the middle of the row.

Grave XVII. was that of a child, and the only ornaments were some glass beads, ten in all; three of sapphire blue, three of pale blue, two of sulphur yellow, and two of brick-red paste.

Grave XVIII. contained only an iron knife. Near this were found two holes or graves, pointing north and south, one containing disturbed bones, the other containing ashes. These I take it are not connected with the cemetery, for in all other cases the graves were east and west.

Grave XIX. contained a good number of objects. On the right of the head were the three iron hoops of a bucket. It measures 6 inches in diameter, the upper hoop flat, the lower ones narrower and rounded outside. Where the loop for the handle joins the rim are remains of the usual double-hoop ornament, and upon the upper rim there are traces of woven material. This grave had unfortunately to be hurried as the light was failing, and the positions in the grave are not certain. Many of the indeterminate loops and pieces of iron are doubtless parts of the bucket; but the other articles comprised a pair of iron tweezers, 2⅜ inches long, an iron knife, an iron buckle 0·9 inch wide, an iron ring 1·05 inch in diameter, and a spiral silver ring, the last no doubt a finger-ring, 0·85 inch in diameter. The most artistic objects were, however, two bird-shaped brooches of bronze gilt and inlaid with silver, the eyes being discs of garnet in silver settings. The pins were, as usual, of iron.

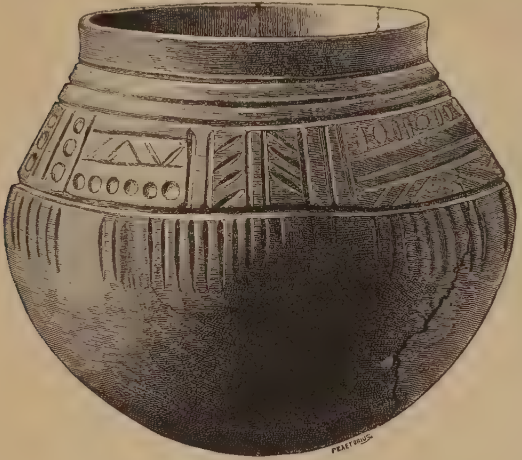

Fig. 5. Pottery vase from Grave XXI.
½ real size.

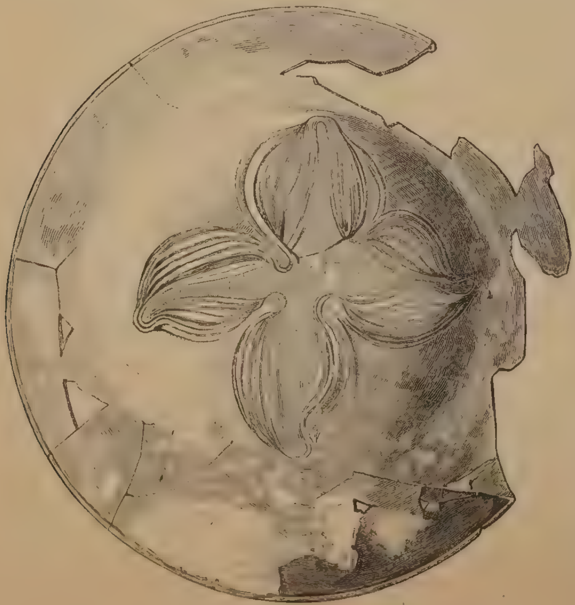

Fig. 6. Glass bowl, outside view, from Grave XXII
⅔ real size.

Grave XX. contained only an iron spear-head, and Grave XXI. only a cup of pottery. This, though anciently broken, probably by the weight of the earth, has been pieced together, and turns out to be a somewhat uncommon type, a rounded body with an ornamental pattern of short lines (fig. 5).

The vigour of one of the men in digging at the next grave (XXII.) ended in disaster, for with a stroke of his spade he ruthlessly shattered a most charming glass bowl, 2⅜ inches in height and 5½ inches in diameter, very much like that found in Grave XIV. This occurred while Mr. Henty was occupied with another grave, and though diligent search resulted in finding many of the fragments yet some are still missing. This is the more to be regretted, as it differs in ornament from any I have ever seen (fig. 6). Upon the bottom, outside, can clearly be discerned a bold quatrefoil design, now represented in sunk lines, but originally, I think, it was formed of threads of glass; but how these were applied I cannot say. It would seem to require a considerable amount of technical skill and dexterity.

Grave XXIII. had only an iron knife and two bronze mounts.

Grave XXIV. contained two iron knives and a spear-head, and, in addition, the most interesting object yet found, a goblet of thin clear glass, 6 inches high, with a foot, and ornamented with two bands of threads. The glass is of a horny texture, and a noticeable peculiarity in its make is that the bowl and foot are of a single piece of glass, the base of the foot being pressed upwards, like the bottom of a wine bottle, leaving the foot itself partly hollow, so that any liquid put into the goblet would run down into the foot also. (Pl. XXVII. fig. 2.)

Grave XXV. was that of a child, and contained only a small, plain, rudely-made cup, having little more than a family likeness to the ornamented one from Grave XXI.

Mr. Henty has during the last few days dug out Grave XXVI. and found two cruciform bronze brooches, of a type new to this cemetery (Pl. XXVII. fig. 6), a small circular one, tinned (Pl. XXVII. fig. 9), a bronze buckle (Pl. XXVII. fig. 5), and an iron ring.

The next grave (XXVII.) contained only one object, but that was of exceptional beauty and interest. It is a drinking glass of a shape obviously copied from a horn, and most skilfully ornamented with vertical and horizontal lines formed of glass threads, 11½ inches in height and 3 inches wide at the mouth. One of precisely the same form was found about thirty years ago at Kempston in Bedfordshire, and is now, with the rest of the collection then found, in the British Museum.[a]

Grave XXVIII. contained no relics.

Grave XXIX. had only one object of bronze, a tube embedded in iron rust, two iron buckles with square plates for attachment to a strap, and an iron knife. The bronze tube is oval in section, 2·75 inches in length, and resembles the mount of the sheath of a small knife, such as are commonly found during the seventeenth century. Both ends of the tube are, however, alike in having the two sides of the opening on different planes, one being set back, and the object cannot, therefore, have been a scabbard mount.[a]

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[a] Figured in *Associated Architectural Societies' Reports*, vii. part 2.

In Grave XXX. were two iron brooches, measuring 1·94 inch and 2·25 inches in length, and a circular bronze object, perhaps a brooch. The iron brooches have pins of bronze, and both are of the common Roman form, viz. the upper part a semi-circular arch, the lower a straight prolongation in the line of the arch. Although these are in appearance very unlike the usual Saxon cruciform brooch (of bronze), they are in reality constructed upon the same principle, which is here carried out in its simplest and least ornamental form.

Grave XXXI. contained a string of beads of sapphire blue glass, 0·26 to 0·35 of an inch in diameter, numbering more than sixty; a large bead of dark brown or green glass, 1·25 inch in diameter, ornamented with interlacing threads of white glass (Pl. XXVII. fig. 10); and two cruciform bronze brooches, 2·72 inches and 3·40 inches in length, the ends of the limbs expanded into a semi-circular form.[b]

Grave XXXII. held only one relic, a glass drinking-horn, 6 inches high, quite perfect (Pl. XXVII. fig. 1). This charming object is of clear greenish glass, encircled with horizontal spiral threads interrupted by two bands of zigzag in the same threadwork, one near the middle, the other round the lip. The execution of this glass is far less perfect than that found in Grave XXVII., and it has further been blown in a different manner. The point of this glass is rounded, thus showing that the operation of blowing it was performed entirely from the upper end, that is, the mouth of the glass, without the help of any attachment to the lower end. In the case of the more carefully executed example from Grave XXVII., the lower end has a punt mark, where a rod of glass attached to it in the process of blowing has been broken away.

All the graves were, without exception, dug as nearly as possible due east and west, the head of the body always towards the west. The depths varied from about 2 feet 6 inches to nearly 5 feet. The bodies appear to have been laid upon the bare chalk-bottom of the grave, though in one case there were traces of what seemed to be a thin layer of soil. The filling in was usually chalk rubble next the bottom, above which, in several cases, was a layer of grey material, as if a kind of plaster had been made of the chalk. This grey layer sometimes reached

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[a] An object equally puzzling, which illustrates this tube, has been found recently at Croydon, with Saxon remains of a similar character to those from High Down. The Croydon example is cruciform, and the horizontal bar is of the same form as the High Down tube, but the other limb has double bronze plates for the attachment of straps. (Dec. 1894.)

[b] Cf. Akerman's *Pagan Saxondom*, pl. xviii. fig. 3.

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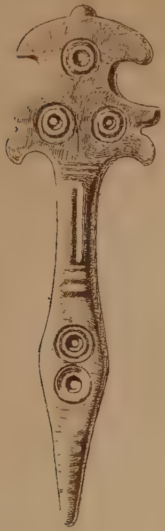

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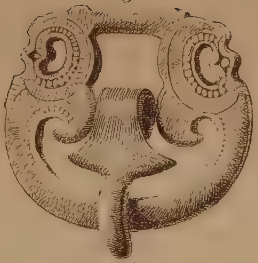

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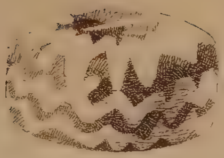

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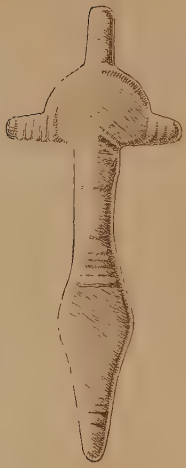

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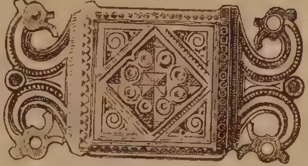

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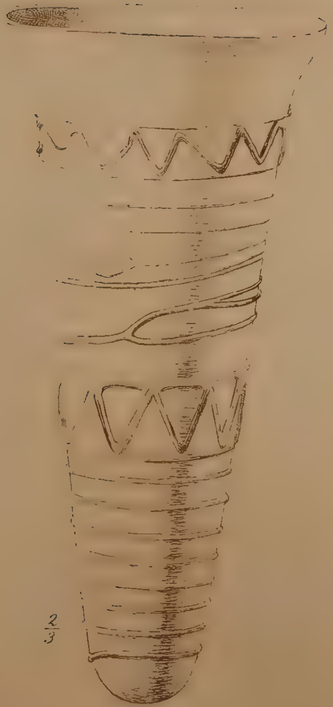

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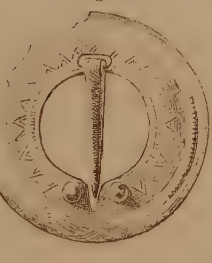

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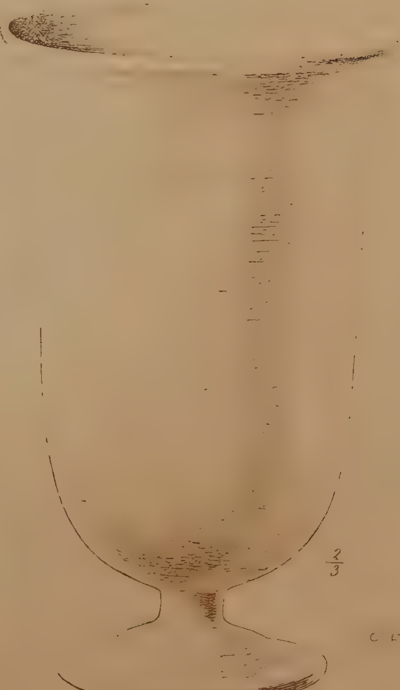

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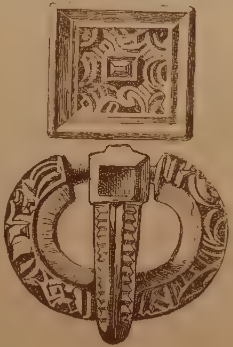

SAXON OBJECTS FROM HIGH DOWN, SUSSEX.

as far as the upper soil, and when thus found it served as a sure indication of the presence of a grave, though perhaps an empty one. Except in one instance the bodies were laid face upwards and at full length, with the hands by the sides or clasped across the pelvis.

Although there is no apparent design in the arrangement of the graves, yet there was never any overlapping of the various interments, nor in any case did two bodies lie in one grave. The limits of each grave were quite distinct, and though sometimes two were close together, there was no appearance of chance in the selection of the spot. This would lead one to believe that some kind of memorial, more or less of a permanent character, had been placed above the graves; but of this we know nothing, and, I need scarcely say that nothing remained to show whether any memorial had ever existed. With regard to such a possibility there is one point which deserves mention, and that is, that we may assume the surface of the ground within the ancient camp to be, natural causes apart, the same as it was when the cemetery was made. Cultivation would scarcely be attempted, and it is unlikely that the plough has ever lowered by an inch the ramparts of the ancient fortification. If, therefore, any such memorials decorated the resting-places of these Saxon folk, they must have been of a perishable kind, or they could scarcely fail to have left some trace over so large an area.

The skeletons presented no remarkable features, so far as my limited knowledge showed me. The men were mostly of large mould, the thigh-bone being in several instances of a length that would indicate a height of about 6 feet; while one young man of powerful build, lying in a grave 7 feet 6 inches long, appeared to be even taller. But such a rough measurement as can be made with a tape on a skeleton newly uncovered is so little to be relied on that I should hesitate to be more precise. None of the bodies had the appearance of old age, if one may take the state of the teeth as an indication. In only one case were the teeth much worn, and then the wear seemed to be caused by the upper and lower jaws not meeting quite evenly rather than by great age. One unfortunate man had a hole in his skull large enough to admit a finger. Whether this blow was the cause of his death or not I cannot say, but he certainly lived for some time after he had received it, for it had originally been twice as large, and the bone was gradually closing up the hole when he died.

I much regretted that there was not some one present at the digging who had a good knowledge of anatomy; but there appears to be no doctor nearer than Worthing.

I think it is scarcely possible to overrate the importance of such discoveries as the one we have before us. The historical evidence for the history of early Saxon times, more particularly in Sussex, is so very scanty, its doubtful meaning has been so much discussed, and its value as an authentic record so much doubted, that it is only by the help of archaeology that we may hope to arrive at the truth.

The district in which High Down is situated is full of Saxon associations. Nearly all the place-names are of Saxon origin. Ferring itself, Tarring, Goring, Angmering, Worthing, and Lancing, all indicate settlements of tribes bearing these patronymics. A certain number of the names of the Sussex marks occur in the *Codex Diplomaticus*, and many more, among them Angmering, Ferring, Goring, and Worthing, are found in Kemble's list[a] of the marks inferred from local names. Kemble gives (p. 58) an explanation of how these names arose, probably from a number of families or comrades attaching themselves to a renowned warrior, who gives his name to the settlement they have chosen. In process of time the inhabitants become too numerous, and a portion of them are drafted off to a new district to form a new home elsewhere. Thus we find on the Continent names similar to those on the south and east of England, and in England itself there are many having the same patronymic as a root. If, therefore, this hypothesis be a true one, it would not be surprising to find the same types of burial and ornaments at or near two places bearing the same name, and if opportunity should occur it would be interesting to compare Saxon remains from two such places. In the present case, although the cemetery is in the parish of Ferring, it is equally near to Goring. Another place of the same name is on the Oxfordshire bank of the Thames, and, though I know of no Saxon remains from Goring itself, I have thought it of some interest to compare the nearest find to Goring, viz. that from Long Wittenham, with the one now before us.[b] It will be admitted, I think, that in some points there is a very strong resemblance. To go somewhat further afield, the specimens upon the table are very similar in many respects to the important find at Kempston, in Bedfordshire,[c] the most striking likeness being that between the fine glass horn from Grave XXVII. and one from Kempston.

Glass, however, is an unsafe foundation for such a theory, for if, as has been argued, all these glass vessels were importations and not made in this country, it is obvious that similar articles might be found among all tribes reached by the importing traders.

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[a] *The Saxons in England*, 1849, i. 456.

[b] *Archaeologia*, xxxviii. 327; xxxix. 134.

[c] *Associated Architectural Societies' Reports*, VII. part 2, 269.

Probably the most remarkable feature about the Saxon remains from Sussex is their unlikeness to those of Kent. This may be in part accounted for by the presence of the Forest of Andred, which formed a barrier, if not impenetrable, certainly very dangerous. This would have been enough to make intercourse between the inhabitants of the two counties infrequent, but not to stop it entirely, for the sea was always open, and to such seamen, no impediment. I think, therefore, we may take it that they had no desire for intercourse, and were, in all probability, hostile neighbours.

It is not easy to fix a very precise date for these interments. On one side we are fairly certain, for the burials are pagan, and, therefore, before the conversion of the South Saxons to Christianity, and this, it must be remembered, took place later than than that of their Kentish neighbours, viz. in the year 635.[a]

In the other direction we have little to help us. The Saxon Chronicle states, with great precision, that in the year 477 Ælla, with three sons, Cymen, Wlencing, and Cissa, landed in Sussex; that in the year 485 they defeated the Welsh; and in 491 they destroyed the population of Anderida. I do not propose to discuss the statements of the Saxon Chronicle. That has already been done by far more competent hands.

I wish also that I could avoid mentioning the Littus Saxonicum. Dr. Guest on the one side, in his learned paper read at the Salisbury meeting of the Archæological Institute in 1849, argues that the Saxon Shore was an institution analogous to the Marches of Wales, and that the Saxons were kept on the outer side of it. Kemble took the opposite view, and, as it seems to me, the true one, that it was called the Saxon Shore because the Saxons were permitted to settle there. A comparison of the two theories has been made by our Fellow Sir Henry Howorth in a paper on the "Migrations of the Saxons,"[b] one main purpose of which is to prove that the people whose burials we are now discussing came from Holstein and the mouth of the Elbe, and not from Nether Saxony.

I merely mention these matters to show how difficult it is to fix a limit of date on the earlier side. The few Roman coins give us no help; they only show that the burials took place after the middle of the fourth century, and that Roman bronze coins were probably rare, or the owners would scarcely have thought it worth while to convert them into ornaments. The appearance of the cemetery itself would indicate peaceable possession of the district, the interments seem to have been decently and carefully made, and everything in the burials points to the conclusion that the cemetery belonged to those who held the land. We can at present draw no conclusions from the number of burials, for part remain unexplored, but it seems probable that the settlement to which the cemetery belonged was on the lower land, at Goring or Ferring, each about a mile distant, and this, again, would lead us to believe that the people lived in a state of security. It is, therefore, more reasonable to think that a considerable time had elapsed since the first landing of the Saxons, and I should be inclined, failing more precise evidence, to place this cemetery somewhere towards the end of the sixth century.

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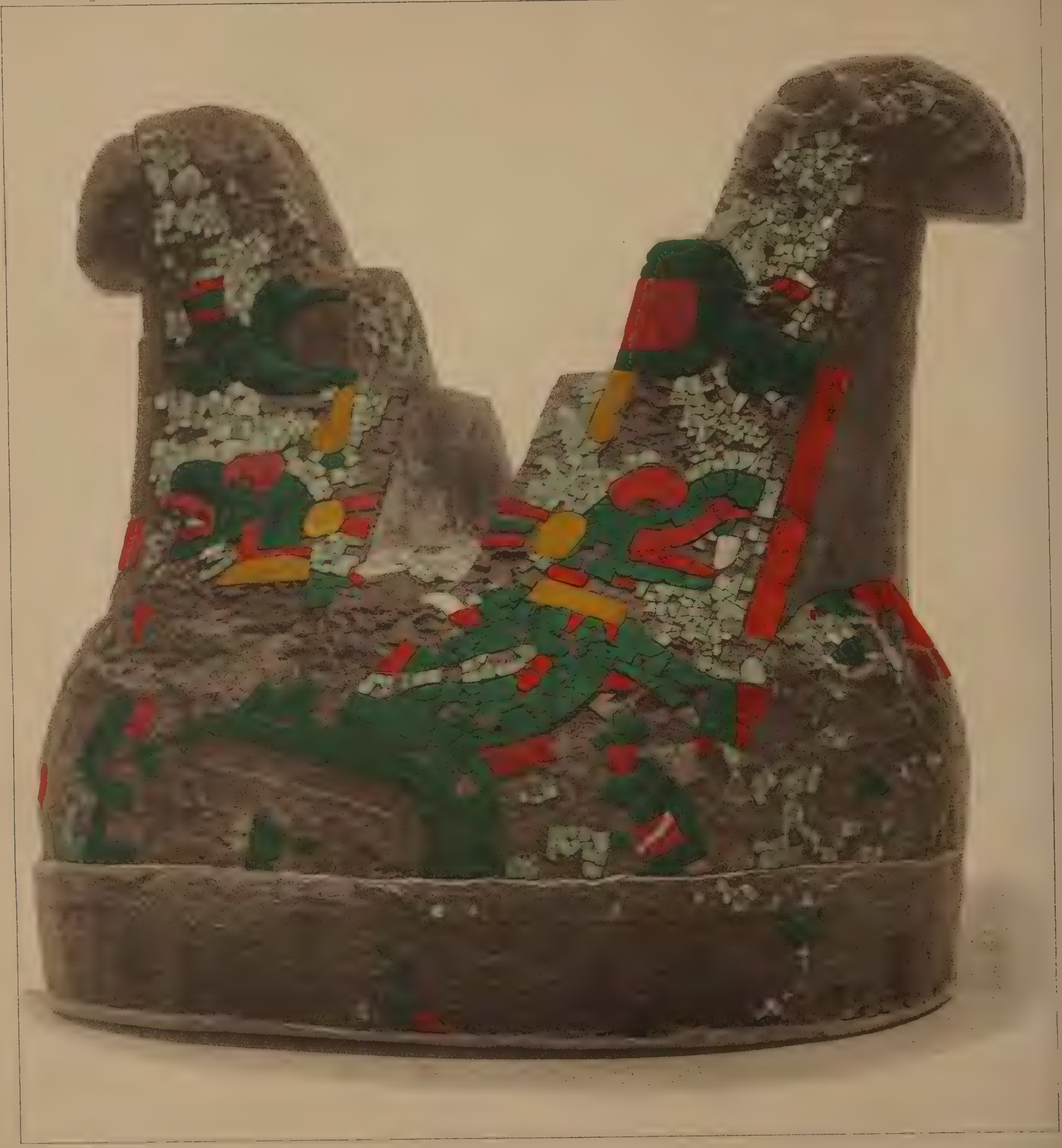
[a] Stubbs's *Episcopal Succession*, 137.

[b] *Journal of the Anthropological Institute*, vol. VII.

Before concluding I think it right to express my thanks to Mr. Henty for giving me the opportunity of exploring this cemetery and for his promise to let me finish the work next autumn.



ANCIENT MEXICAN HEAD-PIECE, COATED WITH MOSAIC.

XIX.—*On an ancient Mexican Head-piece, coated with Mosaic.*

By CHARLES HERCULES READ, *Esq.*, *Secretary.*

Read December 14th, 1893.

It is comparatively seldom that relics of antiquity from the American continent are laid before the Society. There is one good reason for this, in the impossibility, in most cases, of assigning any date to American antiquities. We may be able, from internal evidence, to show that an object was made after the discovery of the continent, and in that case it belongs to the beginning of modern times. If, on the other hand, there is reason for placing it before the time of Columbus, there is little to say beyond the bare statement of that fact. In the absence of intelligible history, it is difficult to see how we are to pass beyond this stage. Among the more civilised peoples, such as the Mexicans and Peruvians, it is easy enough to distinguish and classify the artistic productions of the several great tribes, but to discriminate between the buildings or sculptures of, for instance, the fifteenth and thirteenth centuries is another matter, and one as to which there would probably be as many opinions as men.

The curious object exhibited by the President this evening is, I think, well worthy of your attention on several grounds. As a work of art it is very remarkable, while it belongs to a class of objects of the greatest rarity, and I hope to show that it is of sufficient antiquity to warrant its being brought to the notice of the Society.

It is a head-piece or helmet (Plate XXVIII.), cut from one block of wood, the interior hollowed out to fit the head, and painted green, while the exterior is carved in a symbolical or ornamental shape, with a point at back and front, each descending towards the middle of the head in steps. These two points seem to be intended to represent the upper mandible of an eagle, the beaks pointing upwards. On one side of the helmet a piece of red shell is let in where the eye of the bird would come. The exterior of the helmet, excepting only the lower part between the two beaks and the two outer faces of the beaks, which show traces of red colour, has been covered with a mosaic of slices of turquoise, malachite, pearl shell, and pink shell. This mosaic has been laid upon a bed of dark brown gum, which is so strong that, although a great number of the pieces of mosaic have fallen out, the shapes of the missing fragments can still be clearly seen in the gum. The design formed by the mosaic is a good deal involved, and from so large a proportion of the mosaic being lost it is not quite intelligible in all parts. Round the lower edge has been a broad border, the design of which has, no doubt, been a series of conventional forms; but of this border there is little now remaining. Above the border, upon the head-piece itself, is a complicated design, which is clear enough on one side, but from the absence of some of the intervening parts is difficult to follow on the other. What is quite clear is, that at the bases of the two peaks of the helmet are the heads of two rattlesnakes, represented in the conventional manner usual in Mexican art, with very prominent fangs and, I think, with crested heads. The bodies of the two snakes, formed of plaques of malachite, cross each other, passing down towards the border, and though something of the same kind appears on the other side, I cannot say with certainty whether it is a continuation of the same design or an independent one. Some of the elements of the design resemble the tails of snakes decorated with plumes of feathers, such as are commonly to be seen in the facsimiles of Mexican codices in Lord Kingsborough's great work.[a] In these codices the rattlesnake plays a very prominent part, standing at times as a glyph, as well as forming parts of the dress of gods or warriors, and when it is thus worn the head of the rattlesnake forms a mask or head-dress, much as the skin of the lion's head is seen upon the head of Hercules.

It is a little remarkable that, as this helmet stands at present, the parts with the smallest amount of decoration are the back and front.[b] Whether any adjunct is wanting it is now difficult if not impossible to say, but at any rate there is, in the present condition of the surface, no sign of any missing portion, and supposing the red paint to be original, the inlaid portions must have been confined to their present limits. The lowest step between the two peaks is also devoid of ornament, but like the ends shows traces of paint. A single piece of turquoise is set in the middle, just over the top of the head, and if this be an original insertion it is, perhaps, unlikely that any ornament such as a plume of feathers was fixed here. But, notwithstanding this, I am inclined to think that

[a] *Antiquities of Mexico*, 9 vols., fol., London, 1838-41.

[b] Francisco Lopez de Gomara, *Hist. de Mexico*, fo. 61 (12mo, Antwerp, 1554), cites among the presents sent by Cortes to the Emperor "Un morrion de madera, chapada de oro, y por defuera mucha pedreria."

this surface in the middle was purposely left plain for the insertion of some feather ornament. I have no doubt that much more of the design would be made clear by comparison with other Mexican representations, but I have been unable to devote very much time to the search. I may say, however, that neither in Lord Kingsborough's work nor in any other of the monumental volumes of Mexican antiquities have I found any head gear at all resembling it.

As the President stated in his anniversary address, he obtained this helmet at the sale of the Bateman Collection. This carries its history back to the year 1854, when it was bought by the late Mr. W. Chaffers in Paris. Beyond this nothing is known. It is only, therefore, by comparison with other objects of the same class that we can arrive at any approximate date. I have already said that those mosaics are extremely rare, and it will be seen that the list of all the known examples will not occupy much time or space.

Writing in 1870, Mr. Edward Stevens, in his admirable work, entitled *Flint Chips*, gives an account of the then known specimens, viz. five in the Christy Collection and two in the museum in Copenhagen. Since that time a good many more have come to light; but, so far as I know, in all cases they have been found in Europe. In the exhibition in honour of Columbus, held in Madrid last winter, there was no sign of this class of work, although the museum of the city of Mexico had sent all its treasures, as did also the museums of Spain. I have recently heard also, that no piece of Mexican mosaic is to be found in the Chicago Exhibition. This seems to bear out the theory which I think the most probable, viz. that all these masks and other articles covered with mosaic were brought from the New World to the Old by the Spaniards at the time of the Conquest, or very soon after that date.[a]

In 1885 my friend Professor Luigi Pigorini of Rome published in the transactions of the *Reale Accademia dei Lincei* an account of the specimens in the museum there, of which he is director, giving at the same time notices of all the specimens known to him. In the same year Dr. Adolf Bastian, the energetic director of the Museum für Völkerkunde in Berlin, printed a short account of two interesting pieces obtained from the Ducal Museum of Brunswick.[b] Later, in 1892, Dr. Franz Heger, of the Imperial Museum of Natural History at Vienna, published a most interesting account of certain mosaics recently discovered in that wonderful treasure-house, the Ambras Collection.[c] The account given by

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[a] "The idols were coated with mosaic of turquoise, emerald," etc. Lopez de Gomara, *op. cit.* fo. 121.

[b] *Verhandlungen der Berliner Gesellschaft für Anthropologie*, 1885, p. 201.

[c] *Annalen des K. K. Naturhistorischen Hofmuseums in Wien*, vii. heft. 4.

Professor Pigorini gives the history of those in his museum in some detail, and is illustrated with coloured plates. He states that the whole number known to exist is less than twenty. Of these five are in the Prehistoric Museum in Rome, seven in the Christy Collection in London, one in the Bateman Collection (the example now described), two at Copenhagen, three at Berlin, and one at Gotha,[a] that is, nineteen in all. The history of those at Rome is a very curious one. It had long been known that in the "Musæum Metallicum" of Aldrovandus[b] is a woodcut of a mosaic mask described as "Larva indica variis lapillis exornata, instar Lithostroti." This mask is one of the five objects now in the museum at Rome, and Professor Pigorini describes it as follows: It is of wood, the inside showing the natural surface, the outside encrusted with mosaic and coloured. The back is hollowed out so as to fit a human face, and has round the edge several small holes which seem to be ancient. The mosaic on the front is destroyed in several places and it is not easy to understand the original design. The materials used in the mosaic are, malachite, turquoise, and pieces of shell, white, red, blackish, and pearl shell, besides a little garnet and several squares of metal.[c] The cavities of the eyes must have been originally open as they are now, as the edges and inside are coloured red. From the half-opened and similarly coloured mouth issue two white tusks. The tongue projects over the lower lip, is coloured red, and extends to the chin, where it joins an appendage below. This appendage resembles the head of an animal, but it is badly preserved, and it is not possible to say what it represents. Up to the year 1878 this mask was preserved in the museum of the university of Bologna. Of its previous history we only know that it was in the collection of Aldrovandus, who in describing it quotes Francisco Lopez de Gomara for the fact that the Indians were in the habit of making figures or masks from wood and inlaying them with various coloured stones. A comparison of the figure given by Aldrovandus and that of Pigorini will show that there can be no doubt of the identity of the two. The other mask given in Pigorini's plate is published for the first time. It is of wood like the other, and is in all respects of similar make, though the back is not hollowed out to admit a human face. This mask was acquired in 1880 from the Opificio delle Pietre dure in Florence, and it is of more interest, from the fact that its history can be traced by inventories back to the middle of the sixteenth century. The earliest mention of it is in the *Inventario della Guardaroba Medicea* (1553-1559), where it appears among precious objects of various kinds, viz.:

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[a] This piece was obtained from Rome. It is the head of a bird, conventionally treated, of wood, hollow and overlaid with mosaic of turquoise and malachite; on the top a human figure is inlaid. The eye sockets empty. Length, 12 inches; width, 5½ inches; height, 4½ inches. (Note by Sir A. W. Franks.)

[b] Bologna, 1647, p. 550.

[c] No doubt iron pyrites.

"1553. Una maschera venuta d'India composta di turchine sopra il legno.

1555. Dall' Illm̃o Eccm̃o sig. Duca [Cosimo I.] addi 9 di Marzo, una maschera di legno venuta d'India composta di turchine."

A later inventory (1640-45) mentions two other masks:

"Una maschera di scorza d'albero, commessa tutta di turchine, con un anellino d'oro in bocca, una rosetta di turchine, indiana.

Una maschera di legno indiana, commessa di turchine, la quale notasi che nel dì 31 Agosto 1656 venne data ad Anton Francesco Tofani custode dell' armaria."

This last mask seems to have disappeared from the armoury, and Professor Pigorini has not been able to trace it. There is, however, a possibility that it may be one of the masks now in the Christy Collection.

The mask of bark still remained in the collection in 1783, and appears under the date of 21 December, as follows:

"Una maschera di scorza d'albero, commessa di turchine, con occhi di madreperla, denti d'avorio e piccolo anello d'oro in bocca, con sei piccole turchine e un piccolissimo granato, guasta in parte, con sua custodia di corame nero."

Towards the end of the same year this, with other things belonging to the court wardrobe, was handed over to the Museum of Natural History in Florence, whence, in 1823, it passed with many other worked stones to the Opificio delle Pietre dure.

After referring to the two masks[a] preserved in the Ethnographical Collection of the College of the Propaganda, which belongs to the Museo Borgiano, Professor Pigorini proceeds to describe the other mosaics in his museum.

Figs. 1 and 2 in Professor Pigorini's plate represent two handles in the form of crouching figures, one human, the other with a human body and an animal's head with widely opened mouth. Both of them are, like the masks, entirely covered with mosaic, and in the same style. From the condition of the interior of the mouth of the animal, Professor Pigorini is of opinion that a human face has originally been inserted in the mouth, the figure being in reality that of a man with an animal's head as a mask. By comparison with the sacrificial knife in the Christy Collection (Fig. 2), which still preserves its blade of chalcedony, he has come to the conclusion that these two objects are the handles of similar knives. Both of them formerly belonged to Ferdinando Cospi, and are figured in the *Museo Cospiano* (Bologna, 1667), p. 20, as "Due idoli lavorati a musaico in forma di sfinge."

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[a] I do not think it necessary to refer further to these masks, for though they are ancient Mexican, they are not ornamented with mosaic.

Professor Pigorini here points out that although Legati, who wrote a description of Cospi's Museum, might well have seen both the figure given by Aldrovandus and that of Liceti in his *Pyronarcha* (Padua, 1634), he makes no mention of either.[a]

The remaining piece of mosaic work in the museum at Rome is a musical instrument formed of a human bone, the left femur, the ball of which has been covered with mosaic, and a few pieces of this still remain. As, however, it has no history it is scarcely worth while to describe it further.

It will be seen from the foregoing extracts that these Mexican mosaics existed in Italy in the middle of the sixteenth century. The account given by Dr. Heger of those recently found in the Ambras Collection, although it does not take us so far back, can be equally relied upon, for the evidence here, as in Rome, is derived from contemporary inventories.

Dr. Heger describes how in searching through the miscellaneous treasures in the Ambras Collection in the summer of 1891, a number of ancient Mexican objects hitherto unnoticed were brought to light by Mrs. Zelia Nuttall.[b] Mrs. Nuttall is well known for her devotion to Mexican archaeology, and when in Madrid last winter, she in the same way discovered a very remarkable Mexican feather shield in the Royal Armoury. Among the objects unearthed by her in the Ambras Collection are two pieces of mosaic work, both of which are figured in Dr. Heger's paper. The first is a circular wooden disc, 42 centimetres in diameter, the front of which is somewhat convex, and except for a narrow border, has been covered with a very elaborate design in mosaic composed of turquoise.[c] At the present time, however, a great deal of the mosaic has disappeared, leaving only the impressions in the bed of gum, but enough remains to show that it was a work of the highest character in its own style. The design consists of two circles, one at the top, the other at the bottom; and the rest of the surface is divided into zones by horizontal lines, and filled up with small human figures apparently in violent action.

Dr. Heger has made very considerable research in Mexican literature, and his conclusions with regard to this object may be summed up as follows: That it formed the centre of a shield; that it was probably covered with leather on the back and edge and had a border of feathers. He identifies it as one of the same class as those given by Montezuma to Cortes, and by implication as those sent by Cortes to Charles V. Prescott[a] gives among the presents received by Cortes, sixteen shields of precious stones with feathers of various colours hanging from their edges. Further, Dr. Heger identifies this class of shield as belonging to the god Paynal, who in one place is described as carrying a blue shield, and in another as having a shield set with turquoises. This he derives from the history of Sahagun, who further states that these shields were imported from Tabasco.

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[a] Liceti, p. 125, figures a knife-handle similar to those of Pigorini, and to that shown in Fig. 2.

[b] *Annalen des K. K. Naturhistorischen Hofmuseums*, vii. 379.

[c] *Annalen, ut supra*, Pl. XVIII.

The second mosaic from the Ambras Collection is the head of an animal, 9·7 centimetres in length, made of light-coloured wood, covered with an inlay of pieces of shell, jadeit, turquoise, and thin pieces of glass [? obsidian].[b] This example is of a different make from the others hitherto mentioned, and is executed in a much rougher and bolder style.

The earliest mention of these two objects is in the inventory for the year 1596, where there appears, on fol. 443, "Ain Musaica mit stainlen darynn"; and on fol. 478, "Ain Kopf von ainem Thürr von allerlay farben Stainen gemacht, so die Haiden angebetet."

The same entries reappear in the inventories of the years 1613, 1621, and 1663, as well as in several later accounts.

The most complete account of these mosaics that has ever appeared in England is that given in *Flint Chips*, by Edward Stevens. This book is now twenty-three years old, and since its publication the number of known examples has trebled. An account was given in 1888, by Dr. Richard Andree, at the Congress of Americanists held in Berlin in that year. This, however, does not include those just described from the Ambras Collection, nor the one before us this evening, all three objects of the first importance. I have therefore thought it worth while to take this opportunity of putting together the main facts connected with the subject.

Since this account was read before the Society the Christy Collection has had the good fortune to acquire another example of this rare class of objects, thus raising the total number in the British Museum to nine.[c] This is the remarkable breast ornament in the form of a snake with two heads, shown in Fig. 6, and described as No. 6 in the following list. In common with the majority of these mosaics, it comes from Italy, having been for many years in an old collection in Rome.

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[a] *Conquest of Mexico*, Philadelphia, 1874, i. 357n.

[b] *Annalen*, Pl. XXII.

[c] The total number known is thus twenty-two, viz. Christy Collection, 9; Rome, 5; Berlin, 3; Copenhagen, 2; Vienna (Ambras), 2; Gotha, 1.

As it was long doubted whether turquoise was found in Mexico, I have asked Mr. Rudler, of the Museum of Practical Geology, to be good enough to write the note on the subject which will be found at the end of the paper. This will be found to give ample references to the existing literature.

MEXICAN MOSAICS IN THE CHRISTY COLLECTION (BRITISH MUSEUM).

No. 1.

Human skull (Fig. 1), the back of which has been cut away, and the front covered with mosaic of five transverse bands alternately of obsidian and turquoise; the chin, forehead, and from the upper lip to the top of the cheek-bones being of obsidian, while the two intervening bands are of turquoise. The eyeballs are formed of convex discs of iron pyrites set in circles of white shell. The bones of the nose have been somewhat cut away, and slices of pink shell inserted in the opening. The back of the skull is covered with buff leather, which forms

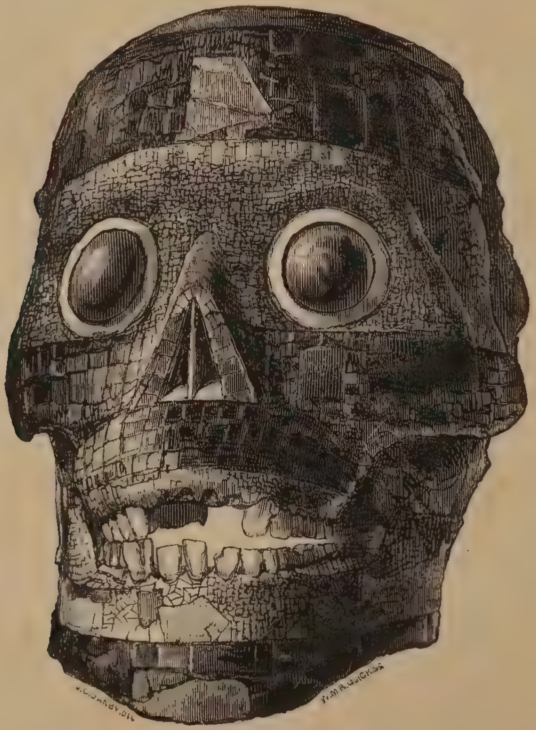

Fig. 1. Front of Human Skull covered with ancient Mexican mosaic work. ($\frac{2}{3}$ linear)

a border round the edge, and is used to form a hinge for the attachment of the lower jaw. Two long straps are passed through the edge of the skull above the temples. The lower jaw contains fifteen teeth, the upper eleven; in the former one canine tooth is wanting, and in the latter three incisors and one bicuspid; but several are inserted in the wrong places. All are in excellent state, and no signs of decay are visible. Sir Richard Owen was of opinion that the skull was that of a man of about thirty years of age. The leather inside the skull has the remains of red colour. There can be no doubt that the alternate bands of turquoise and obsidian are not a fanciful disposition of the materials by the artist, but represent some definite design which may have been the tribal mark of the deceased, or that pertaining to his office. Such bands of colour are found not only on masks, but on living subjects in both parts of America. The use of the skull as now prepared was in all probability to tie round the waist of a god or priest, in the manner frequently represented in both MSS. and on the monuments. From (1) a collection in Bruges (sold c. 1845) and (2) Hertz collection. Figured in Brasseur de Bourbourg, *Monuments anciens du Mexique* (fol. Paris, 1866), pl. 43; in E. G. Squier, *On the Chalchiuitl of Mexico and Central America* (New York, 1869), p. 10; and in Brocklehurst, *Mexico of To-day* (8vo, London, 1883), pl. xxxiii. Height, 6·3 inches.

No. 2.

"Sacrificial knife" with leaf-shaped blade chipped in honey-coloured chalcedony. The handle is of soft, light-coloured wood carved in the form of a crouching human figure (Fig. 2). The actual socket in which the blade is fixed

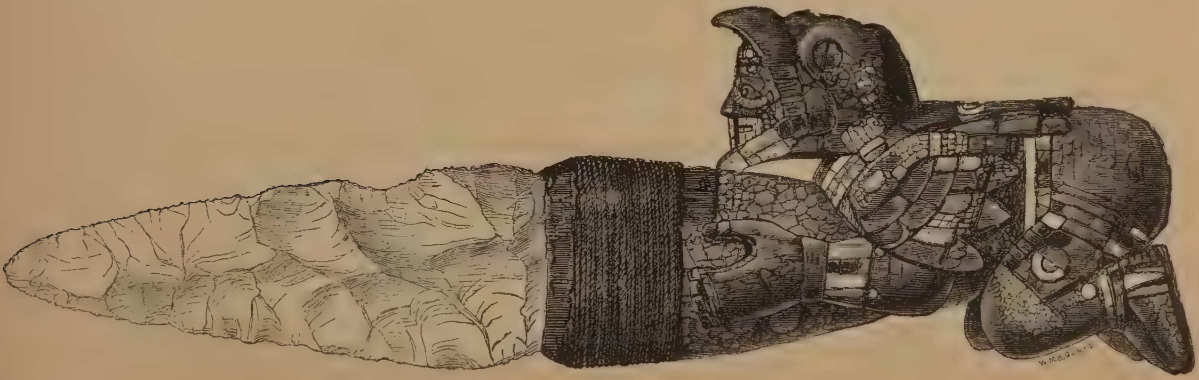

Fig. 2. Sacrificial Knife with mosaic-work handle.

proceeds from the chest of this figure, who clasps it with a hand on each side, and rests his chin upon the top; the socket is firmly bound with cord, apparently original. The figure and the socket up to the binding have been covered with mosaic, chiefly of turquoise, but varied with malachite and shell, white, pink, purple, and orange, as well as a few pieces of pearl shell. Much of the mosaic has however now disappeared, though enough remains to give a fair idea of its original glory. The figure wears an eagle mask, with outspread wings reaching nearly to the elbow of the man. His face, just an inch in length, appears through the widely opened mouth of the bird, and bears the same grim character as the larger masks; pendent from the septum of his nose is a nose-ornament of malachite entirely covering the middle part of his mouth. The beak of the eagle has still some pieces of its original covering of purple shell, and the wings are ornamented with similar shell, varied with malachite and turquoise. Upon the man's back is an apron-like garment formed of stripes of malachite and white shell with three circles, each formed of two semicircles of pink and white shell; he wears anklets and bracelets, the latter apparently of feathers represented by pink shell; he has a belt round his waist and wears short drawers covering his thighs; upon his chest is a rectangular design formed of small slabs of white and purple shell and malachite. Hertz Collection; obtained in Florence or Venice. Figured full size, in colours (but not very accurately) in Brasseur de Bourbourg, *Monuments anciens du Mexique*, pl. 44. A small woodcut is also in E. B. Tylor's *Anahuac*, p. 101, and it is described on p. 338. Length, 12½ inches.

No. 3.

Mask of cedar wood, formed of two rattlesnakes entwined to represent a human face (Fig. 3), the whole of the front covered with mosaic of turquoise, bright blue and dull green, so that the two snakes are distinct in colour. The bodies of the snakes form the nose and mouth, and curve in circles round the eyes, and the two tails project towards each temple from the centre of the forehead, so that the rattles are upon the temples. Each snake has three of these appendages, modelled in the same gum which forms the bed of the mosaic. So fragile a substance as this gum would, however, scarcely be allowed to form the actual surface, and it seems probable that it originally was coated with gold, like the cup on the back of the cat-like animal (No. 8). Each snake has attached to its tail a pendant of three feathers, and beneath these on the cheeks of the mask has been perhaps a continuation of these pendants, as well as the heads of the snakes, but unfortunately these portions have been broken away. The mouth of the mask is slightly open, and has had seven teeth of white shell in the upper jaw, four of which still remain, and there is a slit over each eye, and a hole on each temple for a cord to suspend the mask when worn. The inside is coloured a deep red. The eye-sockets have never had anything set in them to represent the eyes. The wood of this mask has the appearance of much greater age than in any of the other specimens.[a] From the Demidoff Collection; bought in Paris, 1870. Height, 6·9 inches; width, 6·6 inches.

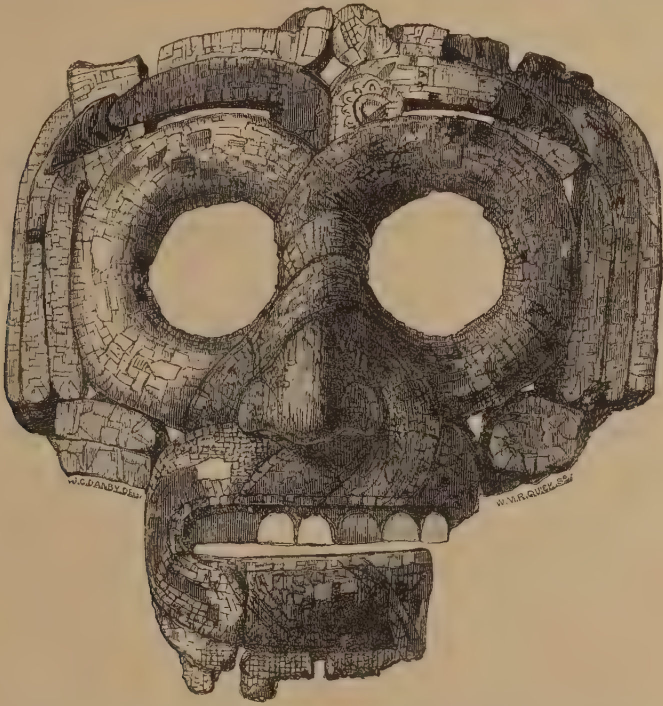
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Fig. 3. Ancient Mexican mask of cedar wood, covered with mosaic work.

No. 4.

Circular disc of cedar, 12·25 inches in diameter, the centre filled with mosaic of turquoise and shell, leaving an edge of plain wood 0·8 inch wide, pierced with holes about 1·25 inch apart (Fig. 4). The centre of the design consists of a circle in relief, the edge of which is divided into four equal parts by ^ shaped points in pink shell, and each quarter of the circumference has three large but irregular pieces of turquoise at intervals. The elements of this design are the same as those of the famous "Reloj de Montezuma," or calendar stone, now inserted in one of the towers of the cathedral of Mexico, though this latter being over 11 feet in diameter is executed with greater detail. This circular calendar, if it be one, is enclosed within a square of the size of its diameter. This square may be continued downwards to the circumference, but in the present state of the mosaic this is uncertain. The figure of a snake disposed meander fashion embraces the whole middle part of the mosaic, the head being on the left hand upper side; one edge of the snake is bordered with imitation studs formed of brown gum, of which a few are still covered with their gold plates. The tail of the snake ends in three feathers at the bottom of the circle. Beneath this is a bifurcation corresponding with a similar one at the top of the circle, but in this upper one the two arms extend in opposite directions and each terminates in four branches with floriated ends. Resting upon the bifurcation is a pear-shaped

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[a] Lopez de Gomara (fo. 10*b*) describes four masks of gilt wood, encrusted with mosaic, and (fo. 309) states that, at the death of a king, masks were placed on the idols.

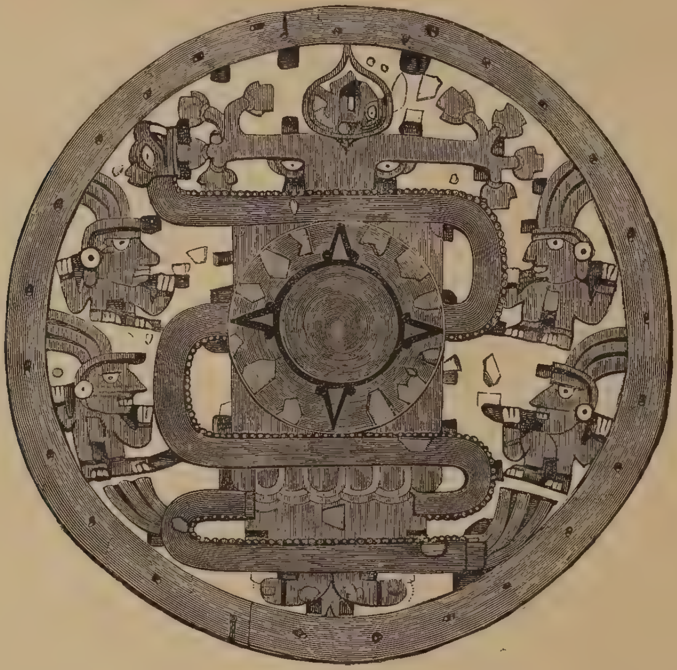

Fig. 4. Ancient Mexican cedar-wood panel covered with mosaic work. ($\frac{1}{3}$ linear.)

enclosure, in which is a human figure lying upon his back. At each side of the mosaic are two conventional human figures with upraised hands and all facing inwards. Each figure wears an ear-plug of pearl shell and a head-dress of three feathers. Through the mosaic and the wood upon which it is fixed are pierced a great number of holes, of a size and shape to suit the design and at convenient points. (The wood-cut, Fig. 4, is diagrammatic.)

Purchased in 1866 from a dealer who stated that it came from Turin.

Although the primary use of this disc may not be that of a calendar, yet the resemblance between it and the calendar stone in Mexico city is so intimate that it may safely be assumed to have some reference to the seasons of the year. Mrs. Nuttall's arguments in favour of these discs being the central ornaments of shields, would not be affected by such an interpretation. There is no doubt that the whole design is symbolic in the highest degree, but the proper interpretation is not yet forthcoming.

No. 5.

Presented by Sir A. Wollaston Franks, *K.C.B.*

Pendent object of white wood carved in the form of an ape-like head with open mouth, the whole of the front covered with a mosaic of turquoise, malachite, and other stones (Fig. 5). The back has a hemispherical depression, still coated

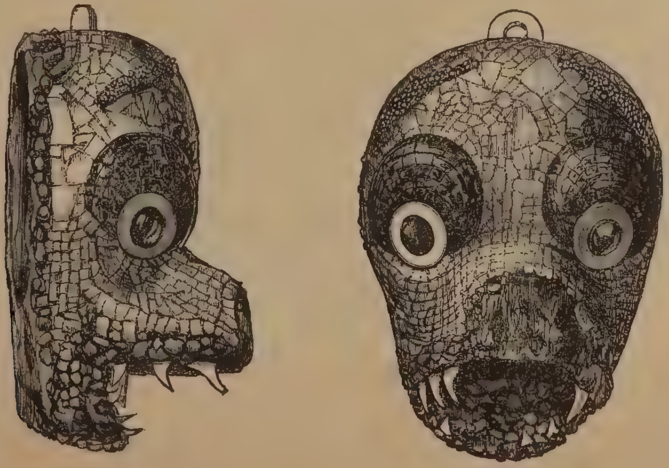

Fig. 5. Ancient Mexican pendant, covered with mosaic work. ($\frac{2}{3}$ linear).

round the sides with a thick layer of rich brown gum, finished to a smooth surface, and having woollen threads running through it. The turquoise mosaic is chiefly of the pale greenish kind, but above the sides of the mouth are two patches of bright blue stone. Each eye is set in the lower edge of a protuberance coated with malachite, the eyes themselves being formed of convex discs of iron pyrites highly polished, set in a ring of yellowish shell. This specimen has been much restored, but fortunately the restorer has used white wax as the bed for the new portions. These are: the inside of the mouth, now covered with polished squares of almandine and cabochon rubies, while the jaws are set with small sharks' teeth; the space above the eyes, where are two eyebrows formed of seed pearls; and the outer edge, where pieces of the original mosaic have been broken away and carelessly replaced with malachite, beryls, etc. Obtained from the same dealer as the last, who obtained it from North Italy. Height, 4 inches; width, 2·7 inches.

No. 6.

Breast ornament in the form of a snake with two heads, the body disposed in loops meander fashion (Fig. 6). The foundation is of light-coloured wood, hollowed at the back to lessen the weight. The front of the body of the snake is covered with mosaic of turquoise, a row of large irregular pieces following the middle of the body. The two heads are of like design, conventional in character; each has

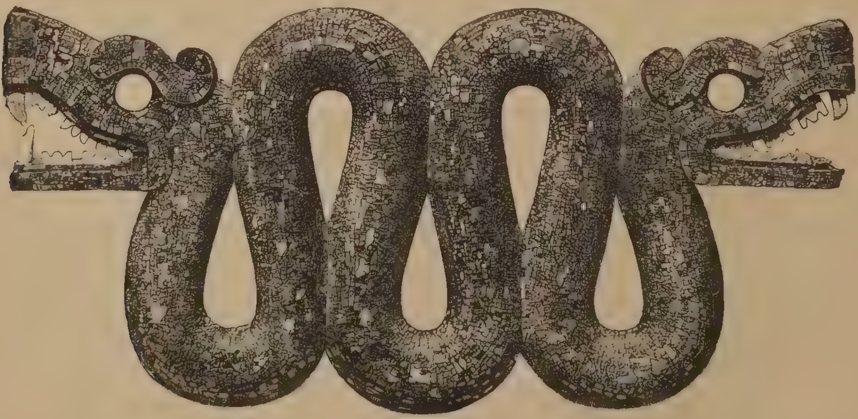

Fig. 6. Ancient Mexican breast-ornament formed of a two-headed snake, covered with mosaic work.

the mouth open, the teeth and fangs made of white shell, or when the original shell has disappeared it is replaced by a tooth of white wax. The edges of the gums are indicated by a band of pink shell. The sockets of the eyes are now empty, but it is clear that a disc, no doubt of iron pyrites, has been set in each of them. Each snake has across the nose a raised ornamental band of turquoise and red shell, and the nostrils are indicated in the latter material. A pendent ornament has originally hung from the lower jaw of each head, which is carefully pierced for the passage of a small cord. The heads are both carefully finished with mosaic on both sides, though the rest of the back is of wood stained red. On the upper edges of the two loops formed by the body are two holes for suspension. Length, 17⅛ inches; height, 8 inches. From an old collection in Rome.

No. 7.

Mask of cedar wood cut to fit the face, the outer surface entirely covered with a mosaic formed of minute slabs of turquoise of a brilliant colour beneath the eyes and on the forehead, while on the other parts of the surface the colour is a poor greyish green. The face is studded with irregularly shaped cabochon turquoises, like warts. The eyes, nostrils, and mouth are all pierced; the first are filled with pointed oval pieces of pearl shell, each with a circular hole to represent the pupil, and the gum surrounding the shell and keeping it in position is gilt. In the half-open mouth is a row of seven teeth, represented as incisors in the upper jaw; these are of white shell. On each temple is set a square of pearl shell, pierced with a hole, doubtless for a cord to pass through and round the head of the wearer of the mask. The inside of the mask is coloured red. Height, 6½ inches; width, 6 inches. From a collection in Florence (or Venice), sold about 1830, bought by a Mr. Descriever, from whom it passed to Mr. B. Hertz, at whose sale Mr. Henry Christy bought it. (It is said to have belonged to a convent at Mozza (? Mozzo). Described in E. B. Tylor's *Anahuac* (London, 1861), p. 338. Figured full size in Brasseur de Bourbourg, *Monuments anciens du Mexique* (fol. Paris, 1866), pl. 43.

No. 8.

Presented by SIR A. WOLLASTON FRANKS, *K.C.B.*

Figure of an animal of the feline tribe squatting upon its haunches, with open mouth and protruding tongue, and having upon its back a circular cup-shaped receptacle; the whole is cut from a solid block of hard, pale-brown wood: the fore legs are very human in character. Ithyphallic. Almost the whole surface has been originally covered with mosaic laid in a bed of black gum, the tesseræ being chiefly of turquoise, varied with pink shell, malachite, a few fragments of iron pyrites, and some large, coarsely-shaped pieces of pearl shell, the last being, perhaps, later additions. Upon each shoulder, and behind each ear, is a circular design in mosaic, and traces of a similar circle remain on the top of the head, and a lozenge-shaped design is seen upon each thigh and on the outside of the upper arms. The cup-like object on the animal's back is now covered with a transparent varnish, except at one part of the outside, where traces of black gum and fragments of mosaic remain. The transparent varnish shows here and there fragments of leaf gold, perhaps indicating that the cup was once gilt. Height, 6·8 inches. Obtained from the late Mr. Joseph Mayer, without history.

NOTE ON MEXICAN TURQUOISE.

By F. W. Rudler, Esq., F.G.S.

It is believed that the principal ancient workings for turquoise were in the trachytic rocks of Los Cerillos, a locality in New Mexico, about twenty miles south-west of Sante Fé. The mountain in which the old mines are situated has been called, in modern times, Mount Chalchihuitl, since Professor W. P. Blake, who first described the locality, believes that the bluish-green turquoise may be identified with the ancient Mexican *chalchihuitl*. The débris of the workings at Los Cerillos may be found covering at least 20 acres. Other old workings for turquoise, though much less extensive, were discovered by Blake at a locality now called Turquoise Mountain, in Chochise County, Arizona.

For description of the Mexican turquoise, see papers by W. P. Blake in *The American Journal of Science* (ii.), vol. xxv., 1858, p. 227; *ibid.* (iii.), vol. xxv., 1883, p. 197; B. Silliman, jun., *ibid.* (iii.), vol. xxii., 1881, p. 67; F. W. Clarke and J. S. Diller, *ibid.* (iii), vol. xxxii., 1886, p. 211. An excellent account will also be found in Mr. G. F. Kunz's work, *The Gems and Precious Stones of the United States*, 1890.

The Society is indebted to the Trustees of the Christy Collection for the loan of the blocks illustrating this paper.

XX.—*On a MS. Psalter formerly belonging to the Abbey of Bury St. Edmund's.*

By the REV. E. S. DEWICK, *M.A., F.S.A.*

Read December 14th, 1893.

THE MS. Psalter, which is exhibited by our Fellow the Rev. Canon Cooke, by the kind permission of the Governors of the Grammar School of Bury St. Edmund's, is a fine example of an English monastic service-book, and is of interest because it can be shown by internal evidence to have belonged to the great abbey of St. Edmund.

An inscription at the beginning of the book[a] records the fact that it was once in the possession of James Cobs, Esq., and that it was presented to Bury School in 1706 by his grandson, James Harvy, formerly an alumnus of the school. There is no other entry which gives direct evidence as to its ownership.

The contents of the book are as follows: Calendar, Psalms of David (fo. 1),[b] Canticles (fo. 112), Litany and *Preces* (fo. 123), *Placebo* and *Dirige* (fo. 128), Canticles for Christmas and other holidays (fo. 133), *Hymnarium* with musical notation (fo. 139 b.); and in a later hand the anthems, responds, and versicles, all noted, of the choir service of the Feast of the Visitation (fo. 172), and the same with the addition of *capitula* and collects for the service of the Holy Name (fo. 179 b).

The leaves measure 17½ by 12¼ inches, and they are 188 in number. With the exception of the Calendar (which is written on six leaves) the book is made up of quires of eight leaves each. No signatures can now be seen, but catchwords connect the last page of each quire with the following.

In its present condition the book can hardly be said to be "bound." Its limp vellum cover is a poor protection to it, and many leaves are loose.[c]

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[a] Hunc librum olim Jacobi Cobs Armigeri | Dedit nobis in Bibliotheca Scholæ Buriensis | Servandum | Jacobus Harvy Jurisconsultus ejus | ex filia Nepos | et hujus Scholæ aliquando | Alumnus | An. Domini | 1706.

[b] The figures refer to the present numbering of the leaves, which takes no notice of the Calendar. Two leaves between 149 and 150 have been overlooked and left without numbers.

[c] Since this was written the MS. has been suitably bound.

I now proceed to describe the component parts of the book.

The Calendar does not offer many points of interest. It is now loose, and although it ranges in size with the rest of the book, it does not seem to have originally formed part of it. For whilst the binding of the Psalter is sewn on *six* bands, that of the Calendar is shown by traces of stitching which remain to have been on *seven* bands. Moreover, the first leaves of the Psalter have received serious damage, whilst the Calendar is in good condition, and if it had always been in its present place it could hardly have escaped the injury which has affected the Psalter. The last page also bears traces of the impression of an illuminated border of different design from that now facing it.

This evidence is further confirmed by the contents of the book. The Psalter and the rest of the book will be shown to be of Benedictine Use, adapted to the abbey of St. Edmund, whilst the Calendar appears to be secular, and it is merely the variation of the Sarum Calendar which was followed in the diocese of Norwich.[a]

From the festivals entered in this Calendar we may conclude that it was written about the beginning of the fifteenth century. It contains the feasts of St. David (March 1), St. Chad (March 2), and St. Wenefred[b] (November 3), which were ordered by Archbishop Walden in 1398 to be observed by the clergy as feasts of nine lessons,[c] and the observance of which was again enjoined by Archbishop Chichele in 1415,[d] *cum regimine chori et ix lectionibus*. But the feast of St. George, which was ordered by Archbishop Chichele in 1415 to be observed as a greater double by people as well as clergy, appears in this Calendar in black letter, whereas other feasts of importance are in red, and the principal feasts and doubles are mostly in blue. So, too, the two feasts of St. John of Beverley (May 7 and October 25) are not noticed, whereas they were ordered by Chichele in 1416 to be observed in commemoration of the victory at Agincourt, gained as it was believed by the assistance of St. John of Beverley.[a]

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[a] The Norwich additions consist of St. Felix, apostle of East Anglia (March 9), Translation of St. Edmund (April 29), St. Dominic (August 5), St. Francis (October 4), and the Dedication of Norwich Cathedral Church on September 24. In this Calendar the last feast has been added by a later hand.

The Calendar used in the abbey of St. Edmund may be partly reconstructed from the imperfect MS. Ordinale for the Use of the Abbey, now in the British Museum (Harl. MS. 2977). It included the two feasts of St. Jurmin and of St. Botulf, and other festivals not found in the Calendar of the MS. under consideration.

[b] The entry in this Calendar is: "Sancte wenefrede uirginis et martyris uiue." The last word is readily explained by the story of this saint's martyrdom, as related in the *Golden Legend*. After her head had been smitten off by Cradok, a "cursyd Tyraunt ful of malyce," it was replaced by St. Beuno and again united to her body, but "euer as longe as she lyued after, there appiered aboute her necke a rednes round aboute, lyke to a rede threde of sylke, in sygne and token of her martyrdome." (Ed. W. de Worde, 1498, fo. cccxiii.)

[c] Wilkins, *Concilia*, iii. 234.

[d] Wilkins, iii. 376.

We are therefore disposed to place the Calendar between 1398 and 1415, a date which seems to be supported by the character of the writing.

The Calendar was apparently in use in the time of Henry VIII., for the title *papa* and the name of St. Thomas of Canterbury have been erased; and an excess of zeal has caused the name of St. Thomas the Apostle to be deleted on December 21.

The Psalter is written in a bold hand in double columns of twenty-two lines to a page, and from the style of writing and decoration it may be assigned to the first half of the fifteenth century. The psalms alone are given, without anthems, versicles, and responds, the beginning of each psalm being marked by a large capital letter. It is evident that it was not written for use after the Gregorian distribution of the Psalter, which was followed in the Church of Sarum and in other non-monastic uses of the Western Church; but it must have been intended for use according to the Benedictine distribution, because those psalms (*e.g.* ix. xvii. xxxvi),[b] which are divided into two parts by that distribution (in order to make up the number to be said according to the rule of St. Benedict), are sometimes written as if they were two separate psalms, the second portion having a large capital letter of its own. In other cases the word *Gloria* or the letter G marks the *divisio*. A later hand, probably about the beginning of the sixteenth century, has written in the margin the days and hours for which the several psalms were to be said in the weekly course according to the Benedictine rule; thus Ps. i. has in the margin "feria ij ad primam," Ps. xx. "Dominica die ad matutinas in primo nocturno," and so on, all of which give the Benedictine distribution and not the Gregorian.

In the matter of decoration, however, this Psalter follows the plan of those in which the Gregorian distribution determines the ornament. The Psalms chosen for decorative treatment are i., xxvi., xxxviii., li., lii., lxviii., lxxx., xcvii., cix. Of these, Psalms i., xxvi., xxxviii., lii., lxviii., lxxx., xcvii. are the first psalms of the first nocturns for Sunday and the following six days of the week respectively. Psalm cix. is the first of Sunday evensong, and Psalm li. marks the commencement of the second third of the Psalter. Psalm ci. is not specially distinguished here, though in Psalters of earlier date it often receives decoration in order to mark the commencement of the concluding third portion of the Psalter.

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[a] Wilkins, iii. 379.

[b] The numbers of the Psalms refer to the Vulgate.

In the special ornamentation attached to Psalms li. and ci., we have a surviving trace of the ancient use which divided the Psalter into three parts, one of which was to be said on each week day.[a]

It is interesting to notice that the Peterborough Psalter of Robert de Lindesey (now in the library of this Society) and other Benedictine Psalters also follow the Gregorian in the matter of decorations, so that prominence is given to psalms which do not commence the first nocturns in the Benedictine distribution.

The decoration of the MS. under consideration commences on the first page of the Psalter, which is encircled with a tree of Jesse. The recumbent figure of Jesse is in the base of the page; three kings are on the left margin and five prophets on the right, and the figure of Our Lady with the Holy Child is placed at the left upper corner. On this page also the first psalm has a picture of David playing on a harp.

Psalm xxvi., *Dominus illuminatio mea* (fo. 17 b), has a picture of David dressed in parliament robes kneeling on a chequered pavement before an altar and pointing to his eyes. The hand of Providence is seen above him. The altar is flanked by green curtains or "ridels," which are fringed with white and red, and do not reach to the ground. The altar itself appears to be of stone, and is vested with a plain green frontal and super frontal of the same colour. It is covered with a white cloth, and a green frontlet with a fringe of red and white appears to be sewn on its front edge. (Plate XXIX., fig. 1.)

Psalm xxxviii., *Dixi custodiam* (fo. 28), has a representation of King David kneeling and pointing to his lips. Above him is seen the Almighty. (Plate XXIX., fig. 2.)

Psalm li., *Quid gloriaris* (fo. 37 b), has David and Goliath. David is armed with a sling and a small target, which bears his arms, *azure, a harp argent.* Goliath is armed with a spear, and is protected by plate-armour, such as was worn at the beginning of the fifteenth century, which agrees with the date of the MS.,[b] and he further carries a large shield which, in defiance of the laws of blazonry, is charged with a black wyvern on a red ground.

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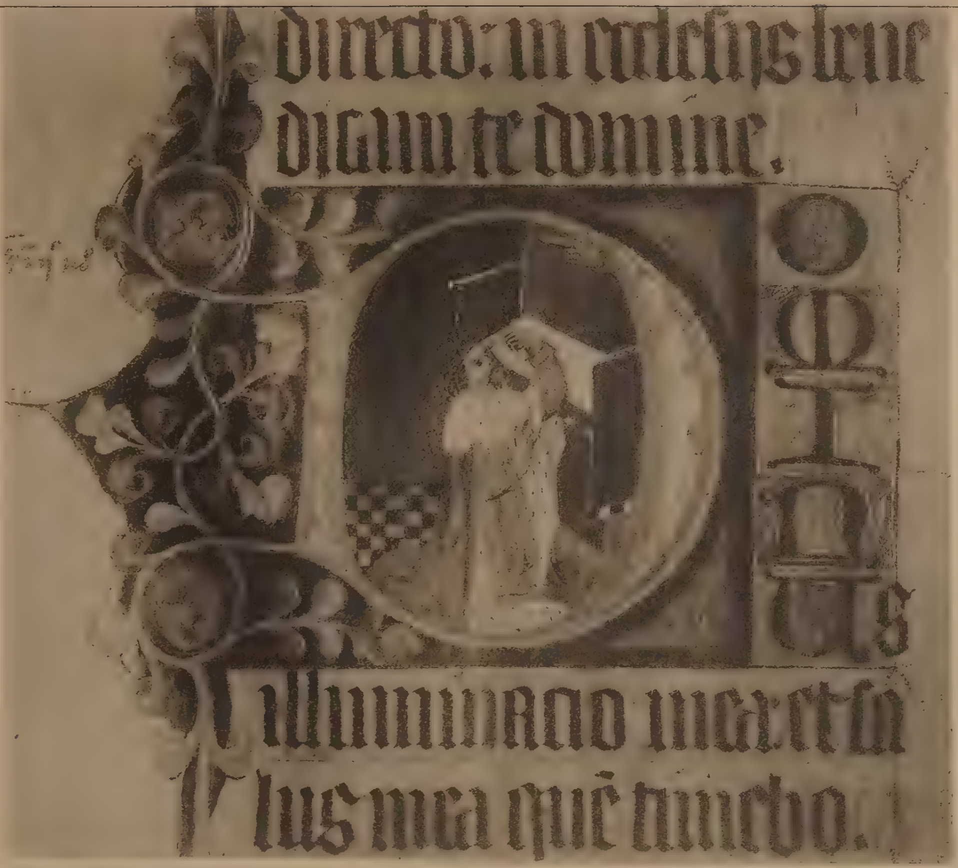
[a] This custom still holds ground, in theory at least, in some portions of the Eastern Church. (A. J. Maclean, *East Syrian Daily Offices*, 1894, p. 17).

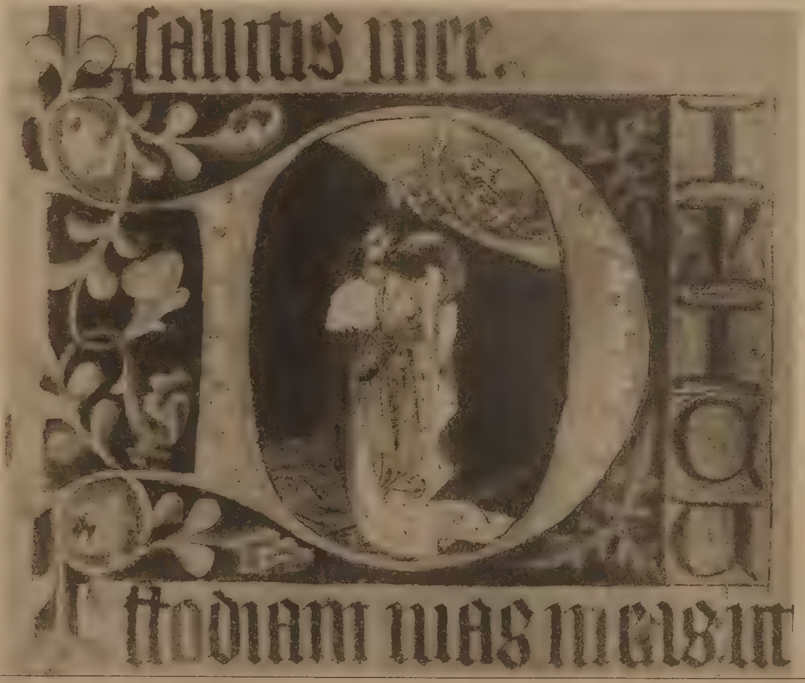
[b] Mr. W. H. St. John Hope has since pointed out that in one of the smaller letters of the illuminated initial of Psalm xxvi. (see Plate XXIX., fig. 1) is a drawing of the royal arms. Though somewhat rubbed it is clear that the French quarters each contained four fleurs-de-lis; the arms are therefore anterior to 1408, in which year the three fleurs-de-lis first appear on the great golden seal of Henry IV. The date of the MS. must therefore fall between 1399 (the arms of Richard II. being different) and 1408.

1.



directo: in ecclesiis bene
dicam te domine.
Dominus
illuminatio mea et sa
lus mea quē timebo.

2.



salutis mee.
Dixi cu
stodiam uias meas ut

ILLUMINATIONS FROM A PSALTER OF THE ABBEY OF BURY ST. EDMUNDS.

Psalm lii., *Dixit insipiens* (fo. 38), has an interesting picture of King David with a court fool before him. The dress of the fool is remarkable. He wears red stockings and a pale green tunic, the right sleeve of which is cut away, leaving the right arm and part of that side of the body bare or covered with a tight-fitting garment of flesh colour. He carries a red staff with a long bladder at the end of it, and his head-gear is surmounted by a wyvern's head. The fool is pointing upwards, as if in the act of saying, *Non est Deus.* (Plate XXX., fig. 1.)

Psalm lxviii., *Salvum me fac deus, quoniam intraverunt aquae usque ad animam meam* (fo. 48 b), has a picture of a nude figure in water which reaches above his waist. In Psalters of the thirteenth century the subject in this place is generally Jonah thrown overboard with the whale waiting to receive him; but in the fifteenth century the subject is changed to King David unclothed, but with a conventional crown on his head, lying in water or wading in water which reaches above his waist. In the picture before us King David is probably intended, although the crown has been dispensed with.

Psalm lxxx., *Exultate deo* (fo. 61), has David playing with hammers on six bells, with his harp beside him.

Psalm xcvii., *Cantate domino* (fo. 73), has a choir of six men, some in surplices, some in albs, with a "ruler" behind them in a blue cope. The choir-book from which they are singing rests on a lectern, which seems to be of wood. (Plate XXX., fig. 2.)

Psalm cix., *Dixit dominus* (fo. 86), has the representation, which is usual in this place, of the first two persons of the Trinity seated, with the dove, the symbol of the third person, between them. Beneath the feet of the seated figures are seen some rather repulsive demons.

We now leave the Psalms, and passing over the Canticles, which do not call for special remark, we come to the Litany, which is in the same hand as the Psalms, and is the first part of the book which clearly allocates it to the abbey of St. Edmund. The names of the saints invoked and the relative position which they occupy can be easily explained on the supposition that the book was written for this abbey.

In the first place, the name of St. Peter is invoked twice. This probably commemorates the Bull of Pope Alexander III. obtained by Abbot Hugo in 1172, by which the abbots of St. Edmund were exempted from promising canonical obedience to any bishop or archbishop, and were made subject to the direct authority of the Roman Pontiff.[a]

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[a] "In suscipienda vero Benedictione Abbas vester nulli Archiepiscopo vel Episcopo, sed soli Romano Pontifici, ad cujus dispositionem idem Monasterium vestrum specialiter pertinet, obedien-

Further on, the name of St. Edmund is brought into the greatest possible prominence by the position which he occupies in the list of martyrs, immediately after the proto-martyr St. Stephen, and before St. Linus and all other martyrs. He is also invoked twice.

Many English names occur among the martyrs which follow, viz. Alban, Edward, Alphege, Thomas of Canterbury (erased), Kenelm, but these occur just as they might be found in any Calendar of the Southern Province.

Amongst the Confessors, St. Benedict is invoked twice, and he is followed by St. Maur. This of course only points to Benedictine Use, but further on in the list of Confessors we have St. Botulph (invoked twice), followed by St. Jurmin. Both of these saints are closely connected with the abbey of St. Edmund. Their bodies had been translated to St. Edmund's, and, as we learn from the *Gesta Sacristarum* of the abbey,[a] their shrines had been enriched with plates of chased silver in the time of Abbot Baldwin (1065—1097), when the shrine of St. Edmund was also similarly adorned.

Very little is known of these two saints, Botulph and Jurmin, who were held in such high honour at St. Edmund's. The first of them seems to have been a bishop of East Anglia, and is not to be confounded with the well-known St. Botulph abbot. His translation was observed at Bury on February 15th as a feast of twelve lessons in two copes,[b] and his other festival was observed on June 17th, the same day as that of his namesake St. Botulph abbot.[c]

St. Jurmin (who is sometimes called Firmin) is said to have been of the royal family of East Anglia, but no particulars of his life have reached us. His translation was observed at Bury on January 24 in two copes, and his other feast was similarly honoured on February 23.[d]

In addition to these saints the Litany contains the names of St. Edwold, brother of St. Edmund, who led the life of a hermit at Cerne, in Dorsetshire, and of St. Ivo, St. Felix, the apostle of East Anglia, St. Guthlac, and others more or less connected with the Eastern Counties.

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tiam promittat vel faciat Professionem." J. BATTELY, *Antiquitates S. Edmundi Burgi.* Oxoniæ, 1745, p. 79.

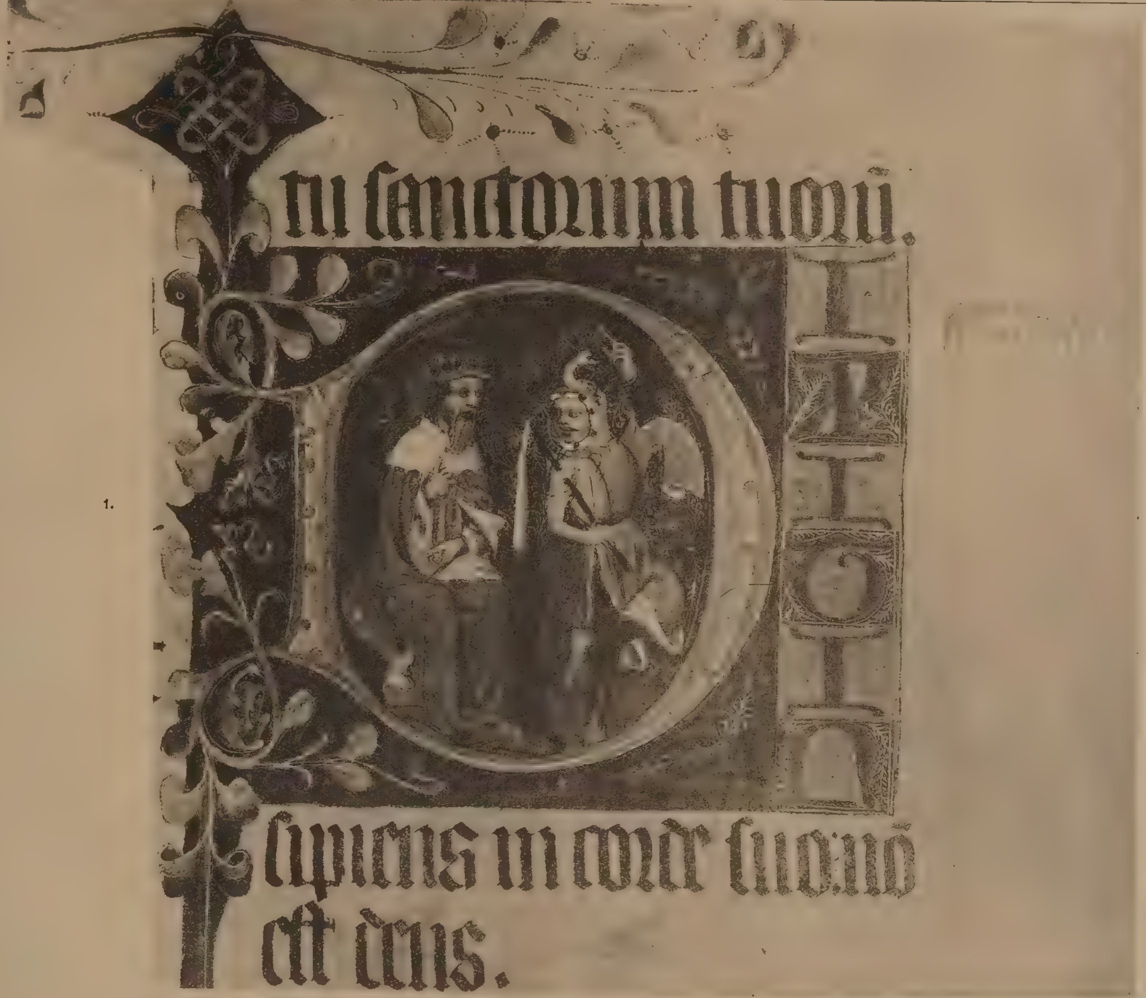
[a] *Memorials of St. Edmund's Abbey*, edited by T. Arnold (Rolls Series), 1892, ii. 289.

[b] "Translatio sancti Botulphi episcopi et confessoris xii. lectiones et in ij cappis." MS. Ordinale of Bury St. Edmund's (British Museum, Harl. MS. 2977, fo. 26).

[c] "Botulfi estanglorum episcopi et botulfi abbatis magne sanctitatis uiri." MS. Martyrologium in British Museum (Roy. MS., 2 A xiii.).

[d] Harl. MS. 2977.

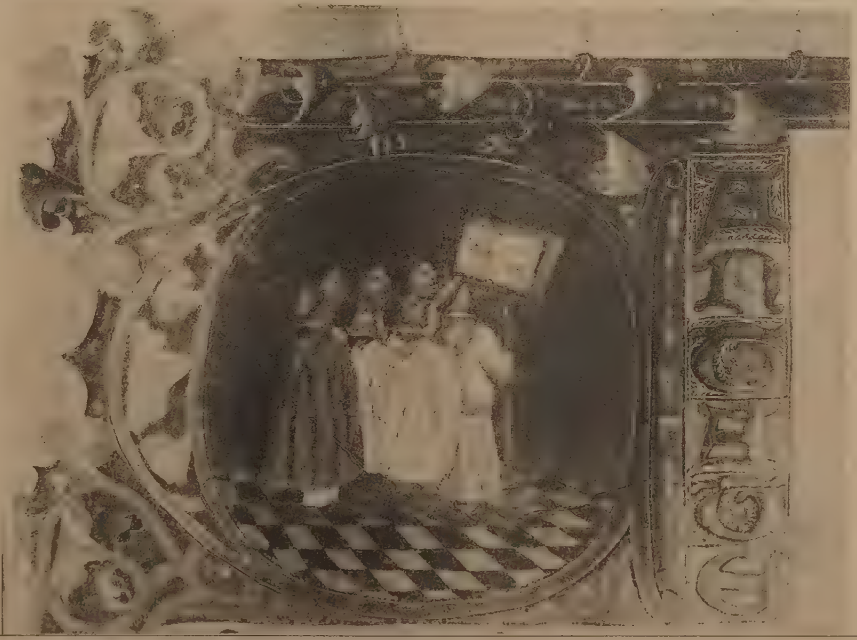
1.



nu ſanctorum tuorũ.

ſipiens in corde ſuo: nõ eſt deus.

2.



ILLUMINATIONS FROM A PSALTER OF THE ABBEY OF BURY ST. EDMUNDS.

There is one name more in the Litany which deserves notice, because by itself it would be almost sufficient to connect the Psalter with St. Edmund's Abbey, viz. St. Saba, inserted in a later hand between St. Gregory and St. Nicholas. St. Saba, or Sabas, a great abbot of the Eastern Church, and the founder of many monasteries in Palestine (where the monastery of Mar Saba, between Jerusalem and the Dead Sea, still bears his name), had a church and monastery dedicated under his name at Rome. When Anselm, abbot of St. Saba at Rome, was promoted to the abbacy of St. Edmund, which office he held from 1121 to 1148, he founded an altar of St. Saba at St. Edmund's, which was dedicated by John Bishop of Rochester.[a] The name of St. Saba is found on December 5 in the MS. Ordinal of St. Edmund's Abbey:[b] "Sancti Sabe confessoris in albis xij lectiones."

Enough has been said to show that the Litany of this Psalter is connected with the Abbey of St. Edmund, and since writing the above my attention has been directed by Canon Cooke to an earlier Litany of the same house, preserved in the Vatican Library at Rome, which has been printed in part by Cardinal Mai in his *Nova Collectio*.[c] In this Litany, which is assigned to the tenth or eleventh century, a list of English saints is found very similar to that in the fifteenth-century Psalter before us, and in particular we find "Sc̄e Eadmunde ij.", "Sc̄e Botulfe ij.", "Sc̄e Hiurmine ij.", by which entries our identification is confirmed.

Before leaving the Litany it may be noticed that the words *dompnum apostolicum* in the petition for all degrees in the Church have been very neatly erased. It was evidently desired to comply with the orders of Henry VIII. in such a way as to disfigure the book as little as possible.

Placebo and *Dirige* follow the Litany, and here the writing is changed to twenty-four lines to a column instead of twenty-two. The Use differs slightly from Sarum, and is probably the Benedictine Use of Bury; and the Canticles for festivals follow the same Use.

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[a] Battely, *op. cit.* p. 69. The chapel of St. Saba was a spot closely connected with an important episode in the history of the abbey. In 1213 the seven electors, to whom was delegated the task of choosing an abbot by way of compromise (*via compromissi*), met in the chapel of St. Saba, and selected Hugo de Northwold, a choice which led to an eventful controversy between the Abbey and King John. (See *Memorials of St. Edmund's Abbey*, ed. by T. Arnold (Rolls Series), 1892, ii. 31.)

[b] Harl. MS. 2977.

[c] *Scriptorum Veterum Nova Collectio e Vaticanis Codicibus* Edita ab Angelo Maio (Romæ, 1831), v. 68. Cardinal Mai has only printed the English names which occur in the Litany. Of these eleven are not found in the later one, which is printed at the end of this paper, viz. Aethelbyrhte, Byrine, Eorconwolde, Oswolde [Ep. Conf.], Iudoce, Grimbalde, Machu, Hyue, Eadburh, Aelfgyfu, Toua.

The Hymnarium, which fills more than thirty leaves of the MS., is of considerable interest. A large number of the hymns are not of Sarum Use, but they are found in the Durham books and other English Benedictine books. Many of them have been printed in the *Anglo-Saxon Hymnarium* issued by the Surtees Society. About half a dozen have not been found in other English books, but by the kind help of Canon Cooke they have all been found in Continental books with one or two exceptions.

Taken as a whole the Hymnarium is interesting, because it evidently gives us the Use of St. Edmund's. Individually the hymns are mostly found elsewhere, but as a group the arrangement is probably peculiar to Bury.

The short hymn for the translation of St. Edmund, which begins: *O mundi pater unice,*[a] may perhaps be peculiar to St. Edmund's; and the hymn for evensong of St. Anne, beginning *O mater preclarissima*, has not yet been identified as occurring elsewhere.

The hymns throughout have musical notation. I am not qualified to say anything on this subject, but I have been informed by the Rev. W. H. Frere and Mr. W. J. Birkbeck that the music often differs much from that of the Sarum books, and is of considerable interest.

In conclusion, I must express my thanks to Canon Cooke[b] for having given me the opportunity of studying this MS., and also for the great help and encouragement which he has given me in the preparation of these notes.

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[a] O mundi pater unice
cunctarum rerum optime
sanctum edmundum annue
nobis pie recollere.

Edmunde pater paterne
tuos fideles respice
et nos paterno animo
defende a periculo.

Laus tibi summe domine
pro cuius sacro nomine
edmundus mortem sustulit
et mortis uictor extitit.

[b] I may be allowed to record with deep regret the death of Canon Cooke on November 23, 1894.

APPENDIX.

LITANY OF THE ST. EDMUND'S PSALTER.

Kyrieleyson. fo. 123.
Christeleyson.
Christe audi nos ij.
Pater de celis deus miserere nobis.
Fili redemptor mundi deus miserere nobis.
Spiritus sancte deus miserere nobis.
Sancta trinitas unus deus miserere nobis.
Sancta maria. ora.
Sancta dei genetrix. ora.
Sancta uirgo uirginum.
Sancte Michael. ora.
Sancte Gabriel. ora.
Sancte Raphael. [ora.]
Omnes sancti angeli et archangeli orate pro nobis.
Omnes sancti beatorum spirituum ordines orate.
Sancte Johannes baptista. ora.
Omnes sancti patriarche et prophete orate pro nobis.
Sancte Petre. ij. ora.
Sancte Paule. ora.
Sancte Andrea. ora.
Sancte Johannes. ora.
Sancte Jacobe. ora.
Sancte Philippe. ora.
Sancte Bartholomee. ora.
Sancte Mathee. ora.
Sancte Thoma. ora.
Sancte Jacobe. ora.
Sancte Symon. ora.
Sancte Tadee. ora.
Sancte Mathia. ora.
Sancte Barnaba. ora.

Sancte luca. ora.
Sancte marce. ora.
Omnes sancti apostoli et ewangeliste. orate pro nobis.
Omnes sancti discipuli domini. orate pro nobis.
Omnes sancti innocentes. orate pro nobis.
Sancte Stephane. ora.
Sancte Edmunde. ij. ora.
Sancte line. ora.
Sancte Clete. ora.
Sancte Clemens. ora.
Sancte Alexander. ora.
Sancte Sixte. ora.
Sancte Corneli. ora.
Sancte Cypriane. ora.
Sancte Laurenti. ora.
Sancte Uincenti. ora.
Sancte Tyburti. ora.
Sancte Dionisi cum sociis tuis. ora pro nobis.
Sancte Maurici cum sociis tuis. ora pro nobis.
Sancte Nigasi cum sociis tuis. ora pro nobis.
Sancte Eustaci cum sociis tuis.
Sancte ypolite cum sociis tuis. ora.
Sancte Georgi. ora.
Sancte Pancraci. ora.
Sancte Albane. ora.
Sancte Oswalde. ora.
Sancte Edwarde. ora.
Sancte Alphege. ora.
Sancte Thoma [erased]. ora.
Sancte Kenelme. ora
Sancte ffabiane. ora.
Sancte Sebastiane. ora.
Sancte Geruasi. ora.
Sancte Prothasi. ora.
Sancte christophore. ora.
Sancte Grisogone. ora.
Sancte Ignaci. ora.
Sancte Marcelline et Petre. orate pro nobis.
Sancte Johannes et Paule. [orate pro nobis.]
Sancte Cosma et Damiane. orate pro nobis.
Omnes sancti martyres. orate pro nobis.

Sancte Siluester. ora.
Sancte Marcialis. ora.
Sancte Hillari. ora.
Sancte Jeronime. ora.
Sancte Martine. ora.
Sancte Ambrosi. ora.
Sancte Augustine. ora.
Sancte Benedicte. ij. ora.
Sancte Maure. ora.
Sancte Gregori. ora.
saba. ora. [inserted by a later hand between the lines.]
Sancte Nicholae. ora.
Sancte Egidi. ora.
Sancte Augustine cum sociis tuis. ora.
Sancte Dunstane. ora.
Sancte Edmunde. ora.
Sancte Swythune. ora.
Sancte Ethelwolde. ora.
Sancte Cuthberte. ora.
Sancte Pauline. ora.
Sancte Bothulphe. ora. ij.
Sancte Jurmine. ora.
Sancte Edwolde. ora.
Sancte Edwarde. ora.
Sancte Wlstane. ora.
Sancte Iuo. ora.
Sancte felix. ora.
Sancte Gutlace. ora.
Sancte leonarde. ora.
Sancte Alexi. ora.
Omnes sancti confessores. orate pro nobis.
Ommes sancti monachi et heremite. orate pro nobis.
Sancta anna. ora.
Sancta maria magdalena. ora pro nobis.
Sancta felicitas. ora.
Sancta Perpetua. ora.
Sancta Agatha. ora.
Sancta Agnes. ora.
Sancta Cecilia. ora.
Sancta lucia. ora.
Sancta anastasia. ora.

Sancta Eufemia. ora.
Sancta christina. ora.
Sancta Margareta. ora.
Sancta Petronilla. ora.
Sancta Scolastica. ora.
Sancta ffidis (*sic*). ora.
Sancta Genouefa. ora.
Sancta Brigida. ora.
Sancta Katerina. ora.
Sancta Helena. ora.
Sancta Etheldreda. ora.
Sancta Mildritha. ora.
Sancta Ogitha.[a] ora.
Sancta Editha. ora.
Sancta Ethelburga ora.
Sancta Sexburga. ora.
Sancta Whitburga. ora.
Sancta Ermenilda. ora.
Omnes sancte uirgines. [orate pro nobis.]
ij. Omnes sancti orate pro nobis.
Propicius esto parce nobis domine.
Propicius esto libera nos domine, &c.

NOTE.

The petitions in the Litany are the same as those in the Litany of a Westminster Psalter in the British Museum.[b] This Litany will be printed in the third volume of *Missale ad usum Ecclesie Westmonasteriensis,* now being edited by Dr. J. Wickham Legg, F.S A., for the Henry Bradshaw Society.

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[a] = Ositha.

[b] Reg. MS. 2. A. xxi. fo. 182b.

XXI.—*On a MS. Pontifical of a Bishop of Metz of the Fourteenth Century.*

By the REV. E. S. DEWICK, *M.A.*, *F.S.A.*

Read January 25, 1894.

BY the courtesy of our Fellow Thomas Brooke, Esq. a MS. Pontifical is exhibited, with pictured subjects of great beauty and in a splendid state of preservation. It has been briefly described in the Catalogue of the Brooke Library under the title *Pontificale Romanum*,[a] and is there set down as the work of an English scribe, and assigned to the thirteenth century, but it will be presently seen that this description needs revision.

The book consists of 140 leaves of vellum, which measure 12½ by 9¾ inches, and it has forty-two large miniatures illustrating various ceremonies in which a bishop might be called upon to take part. Of these miniatures twenty-nine are finished, whilst thirteen of them remain unfinished, the last seven not having been advanced beyond the stage of outline.

In addition to the large miniatures there are many historiated initial letters, and a profusion of grotesques and of subjects drawn from scenes of contemporary life at the foot of almost every page.

But before entering into the subject of the contents of the book and of its pictures, it is desirable to trace its history as far as possible. At the outset of this inquiry we are confronted by the difficulty which often occurs in the case of Pontificals, viz. that an attempt has been made to obliterate the marks of personal ownership. A Pontifical was generally the private property of a bishop, and at his death it was sometimes bequeathed to a church,[b] but more often left to the disposal of his executors, and in order to adapt it to the use of some other bishop erasures and alterations were made.

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[a] *Catalogue of the Manuscripts and Printed Books collected by Thomas Brooke, F.S.A.* (London, 1891), ii. 523.

[b] For example, Roger de Mortival, Bishop of Salisbury (1315—1330), bequeathed a Pontifical to the cathedral church of Salisbury, as shown by an inscription in the book, which is now in the Bodleian Library (Rawlinson, C. 400).

In this particular book, the numerous shields of arms on the first page and throughout the book have been carefully scraped, and painted over with masses of blue or red paint. Also in the office for the consecration of a bishop, the name of the see of the bishop elect who makes profession of canonical obedience has been erased, together with that of the metropolitan to whom the profession is made, and in each case the words *talis ecclesie* have been filled in over the erasure as if to make the book fit for the use of any bishop to whom it might be sold.

At the first inspection of the MS. it seemed as if all traces of its original ownership and locality had been removed, but fortunately in the office for the benediction of an abbot, and again in the corresponding form for that of an abbess, the question asked by the bishop of the abbot or abbess elect has been allowed to stand as follows: *Vis metensi ecclesie et mihi . meisque successoribus subiectionem et obedientiam exhibere . secundum canonicam auctoritatem et decreta sanctorum pontificum?* (fo. 64 b and 84).

From this passage we gather that the MS. was written for a bishop of Metz, one of the suffragans of the province of Trier.

This attribution of the book to Metz is confirmed by the short litany on fo. 12, in which four saints of each class are invoked, viz. four apostles, four martyrs, four confessors, and four virgins, with the addition of St. Mary Magdalene. The first two classes do not yield any evidence, the apostles being SS. Peter, Paul, Andrew, and John the Evangelist; and the martyrs being SS. Stephen, Laurence, Vincent, and George. St. Stephen is the patron saint of the cathedral church of Metz, but as protomartyr he would head the deacons in any litany. The confessors are SS. Silvester, Clement, Martin, and Benedict. Here St. Clement must not be confused with the martyr Pope of that name, but may be safely identified with St. Clement, first bishop of Metz,[a] whose name would not be entitled to special prominence except in Metz. The virgins again are neutral witnesses, being SS. Agatha, Lucy, Agnes, Katherine.

When we inquire further as to the particular bishop for whom the book was written, we are met by the want of armorial bearings which should decide the question definitely. In some cases, however (*e.g.* on fo. 43 b), it is just possible to see the two fishes placed back to back which distinguish the arms of the counts and dukes of Bar.[a] These two fishes occur also in the ornamental fillings up of the capital letter M on fo. 8 b, and often singly; and in such cases they have been left without erasure, being regarded as mere decoration. On turning to the list of the bishops of Metz, we find that Reinhald von Bar held the see from 1302 to 1316,[b] and as this date agrees well with the workmanship of the book, we may venture to assume that the book was originally written for this prelate.

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[a] Gams, *Series Episcoporum,* Ratisbonæ, 1873, p. 292. The festival of "Clemens Episcopus Metensis" was observed at Metz as a festival of nine lessons, on November 23, the same day as Clemens P.M. elsewhere, and his Translation on May 2.

Another shield of arms which occurs frequently (fo. 4 b, etc.) in the book has three silver pales on a red (?) field, with a chief of gold. (*Gules, three pales argent, a chief or*).

Possibly more convincing evidence as to the ownership of the book might be obtained by cleaning off the paint which has been applied to obliterate the coats of arms, and in the meantime it is not needful to say more than a few words about the bishop to whom it is provisionally assigned.

Reinhald von Bar was the son of Theobald II., Count of Bar, and when his brother, Henry III., started for the East to take part in the Crusade, he was appointed one of the Regents of Bar, and took an active part in managing its temporal affairs. He died in 1316, it was suspected of poison, when planning an attack upon the Duke of Lorraine. When his tomb was opened in 1521, his body was found clad in rich vestments, and his mitre is noticed as having Moses and Aaron embroidered upon it.[c]

Although the book was written for a prelate owing allegiance to the Holy Roman Empire, the workmanship is throughout of a thoroughly French character, and must be assigned to the early part of the fourteenth century, even if the attribution of it to Reinhald von Bar is considered as not proved. In the borders the stiff conventional ornament of the thirteenth century has partly budded out into natural branches with leaves resembling those of ivy, which are characteristic of the fourteenth century, but in some respects the fashions of the thirteenth century survive. The knights in armour are still clad in chain mail; there is not a trace of plate armour. The architecture, too, might be assigned to the end of the thirteenth or the very commencement of the fourteenth century. The church, which is represented many times in the pictures illustrating the dedication of a church, is a building of fully developed Geometrical Decorated, and is remarkable for a lofty clerestory, which occupies about one-half of the total height of the building. Those who have visited the cathedral church of Metz will remember that the existing clerestory is of immense size, about equal in height to the nave arcade and triforium together. The double range of flying buttresses, which characterise the present building, is also well shown by the artist of the Pontifical, and we may fairly regard the pictures as giving a conventional representation of the cathedral church of Metz, the nave of which was completed in 1332.[a]

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[a] *Bar* (contes et ducs *de*). D'azur, semé de croix recroisettées au pied fiché d'or, à deux bars adossés du même, brochant sur le tout. (Rietstap, *Armorial Général* Gouda, 1884, Tome, i. p. 110.)

[b] Gams, *Series Episcoporum*, Ratisbonæ, 1873, p. 293. Grote, *Stammtafeln*, Leipzic, 1877, p. 334

[c] Calmet, *Histoire Ecclésiastique et Civile de Lorraine*, Nancy, 1728, p. 480.

We may now proceed to describe the contents of this Pontifical, which does not contain the whole of the services in which a bishop might be required to officiate.

The first office is that for the dedication of a church, which occupies sixty-two leaves and has nineteen large pictures, besides many historiated initials. Then follow the forms for the blessing of an abbot of monks and an abbot of canons, with corresponding forms for abbesses. Then comes the *ordo* for holding a synod; and the book ends with the form for consecrating a bishop, which fills thirty-seven leaves and has twelve large unfinished pictures. There are no offices for confirmation, nor for conferring sacred orders, nor for the numerous benedictions which a bishop might be called upon to perform. The original owner of this Pontifical was, perhaps, too great a man to concern himself about these smaller matters, which he may have delegated to a suffragan, or else he may have had another book more suited to the requirements of rough every-day use.

But before giving more precise details of the book before us, a few words may be said about other Pontificals of bishops of Metz. One of the earliest forms for the dedication of a church happens to be contained in the sacramentary of Drogon, bishop of Metz (826–855),[b] which is now in the National Library of Paris. The form in this sacramentary differs much in detail from that in the Pontifical before us.[c]

There is also in the National Library at Paris[d] a much later Pontifical of a bishop of Metz, which has been kindly examined for me by Dr. J. Wickham Legg. He reports that it is a plain book, in red and black, of the fifteenth century, without pictures of any kind. In the matter of services it is more complete than Mr. Brooke's Pontifical, for it includes *Reconciliatio ecclesie, Benedictio altaris portatilis, Ordo de sacris ordinibus, Consecratio regis,* etc. In the *Ordinatio Abbatis* there is the question, *Vis metensi ecclesie et mihi meisque successoribus, &c.*? as in the Pontifical before us, and in the office for the consecration of bishops there is the question asked by the metropolitan of the bishop elect, *Vis treverensi ecclesie mihi et successoribus meis, &c.*? which gives the words which have probably been erased on fo. 107 b. of Mr. Brooke's Pontifical. Of the details of the services in the Paris book I have no information. No other Pontifical which can be assigned to a bishop of Metz is known to us; and the description of the Brooke Pontifical may now be proceeded with.

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[a] Murray's *Handbook for France*, 1873, p. 668.

[b] Delisle, *Mémoire sur d'Anciens Sacramentaires*, Paris, 1886, p. 100.

[c] MS. Latin, 9428. The office is printed in the Appendix to Duchesne's *Origines du Culte Chrétien*, Paris, 1889.

[d] MS. Latin, 1233. It was formerly in the Colbertine Library, No. 4496, and is referred to by Martene in *De Antiquis Ecclesiæ Ritibus*, Venetiis, 1783, i. p. xxi.

The offices contained in this Pontifical appear to have on them very few marks of the local and personal influence which some bishops impressed on their Pontificals. Indeed, they are mostly taken, with little variation, from the *Ordo Romanus.* The service for the dedication of a church is almost identical with the *Ordo ad benedicendam Ecclesiam* printed by Hittorpius.[a] The prayers, benedictions, anthems, and responds are nearly all the same. The rubrics have some variations, and those in this Metz Pontifical generally give fuller and more precise rules than those in the *Ordo Romanus.* The long litany of the latter has also been curtailed, as already noticed. The Metz Pontifical omits the form for the blessing of the vessels to be used in the service of the church, but gives the full text of the mass *Terribilis,* for which in the *Ordo Romanus* reference is made to the sacramentary.

The other offices in the MS. are also found to be very closely allied to those in the *Ordo Romanus;* and we may, therefore, confine our description of the book mainly to the pictures, merely pointing out from time to time some peculiarities in the rubrics which deserve notice. Of the *Ordo Romanus* itself, it may be sufficient here to remark that it can be traced back to the eighth century, and that it may be connected with Charles the Great's introduction of Roman ritual into his dominions.[b] At the beginning of the ninth century, Amalarius of Metz wrote a commentary on parts of the *Ordo,*[c] and this treatise may have had some effect in inducing a bishop of Metz to follow the *Ordo Romanus* in the fourteenth century.

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[a] Melchior Hittorpius, *De Divinis Catholicæ Ecclesiæ Officiis,* Parisiis, 1624, p. 119.

[b] Cf. Duchesne's *Origines du Culte Chrétien,* Paris, 1889, p. 143.

[c] This is printed in Hittorpius, *De Div. Cath. Eccl. Officiis,* Parisiis, 1624, p. 306; and also by Mabillon, *Museum Italicum,* vol. ii. See also Smith and Cheetham's *Dictionary of Christian Antiquities,* Art. *Ordo.*

The first office in the Brooke Pontifical is that for the dedication of a church, and the picture with which the book opens (Plate XXXI.) shows the inside of the temporary pavilion or tent, in which, on the night which preceded the dedication, watch was kept before the relics which were to be enclosed in the altar of the church to be dedicated.[a] Lay-folk, both men and women, are seen kneeling around a richly decorated gilt reliquary, which is in the form of a chapel with three windows in its side and elaborate roof-cresting. By the convenient licence of mediæval perspective both gable-ends are seen at the same time.

The actual ceremony of the dedication commences with the arrival of the bishop and clergy at the tent in which the relics have been placed, and where watch has been kept during the previous night. The rubrics of the Pontifical are fuller than those of the *Ordo Romanus*. The bishop is ordered to be vested in albe, stole, silken cope, and *mitra pluvialis* and to have his crosier; but to be without fanon, sandals, and gloves. A litany[b] is then said, and at a certain point in it the bishop is to rise and make the sign of the cross toward the church to be dedicated, saying three times, *Ut ecclesiam istam benedicere et conseruare digneris.* The picture on fo. 2 illustrates this scene. The acolyte who holds the book before the bishop is raised on a stool in order that he may bring the book nearer to the eyes of the bishop.

When the litany is concluded, the exorcism and blessing of water and salt take place, and the relics are removed from the tent. Then a procession is formed, the relics are carried on the shoulders of two clerks vested in copes,

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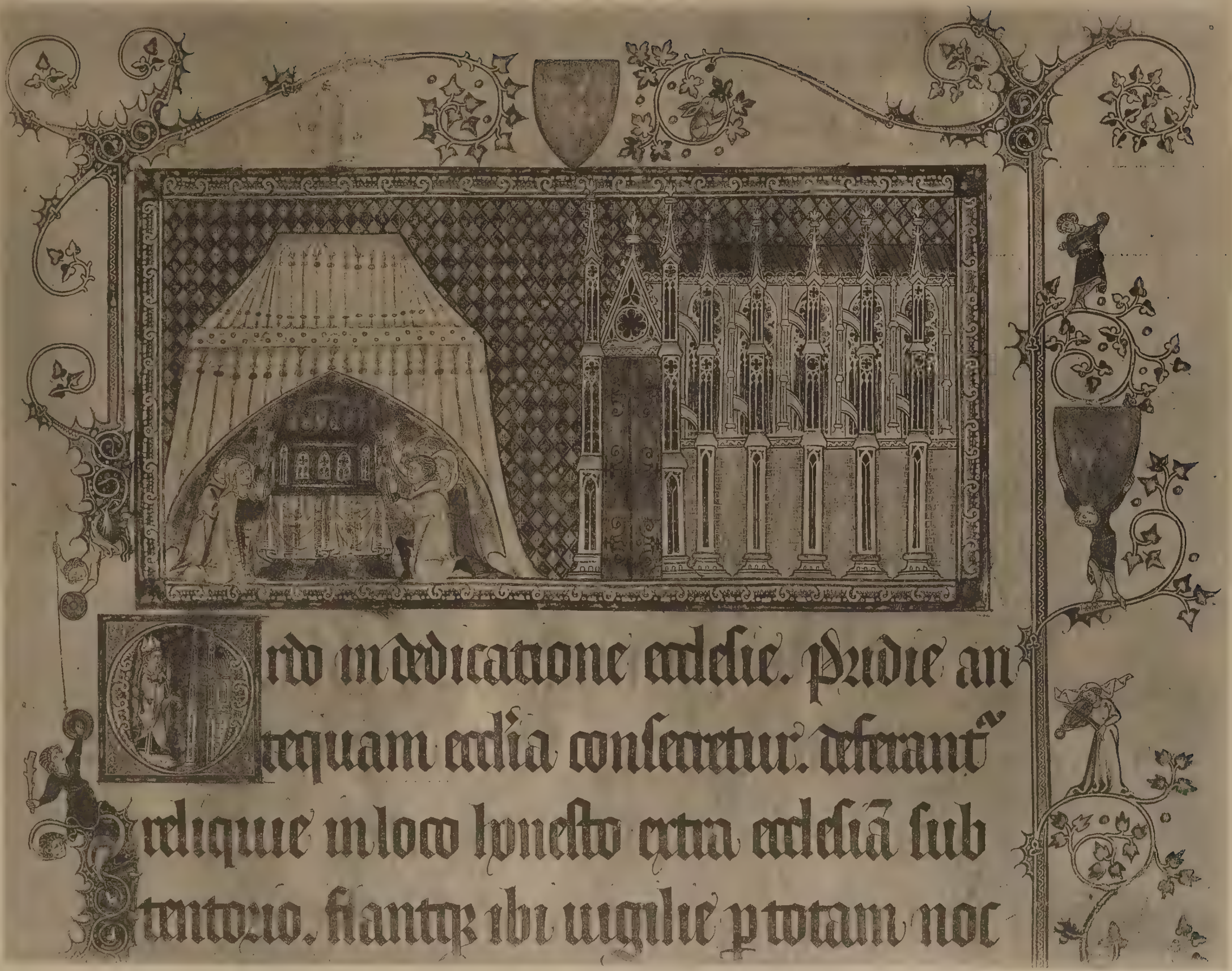
[a] It may be remarked that the night vigil before the relics, and the subsequent enclosing of them in the altar of the church, are prominent features in the Roman and in most Continental Pontificals. In many English Pontificals, however, there is no mention of the enclosing of the relics of saints in the sepulchre of the altar. When the enclosing of relics is noticed it is said to be done in the Roman manner (*more Romano*), when no relics are enclosed the dedication is performed after the English custom (*more Anglicano*). This is very clearly set forth in a MS. Pontifical in the British Museum (Lansdowne, 451, *circa* 1400), written for a bishop of London, in which the Roman Use is given as an alternative to the English, but it is added that Roman manner of enclosing relics was seldom used in those days, on account of the scarcity of old relics, and the fact that the canonisation of new saints was a rare event. ("Sciendum est tamen quod variis modis recluduntur reliquie infra altare licet istis temporibus hoc raro fiat propter reliquiarum antiquarum paucitatem et novorum sanctorum raram canonizacionem." Lansdowne MS. 451, fo. 136 b.) Another difference between the Roman and English mode of dedicating churches is that in the former twelve crosses are painted on the inside walls of the church only, whilst in the latter twelve crosses are painted on the outside as well as on the inside.

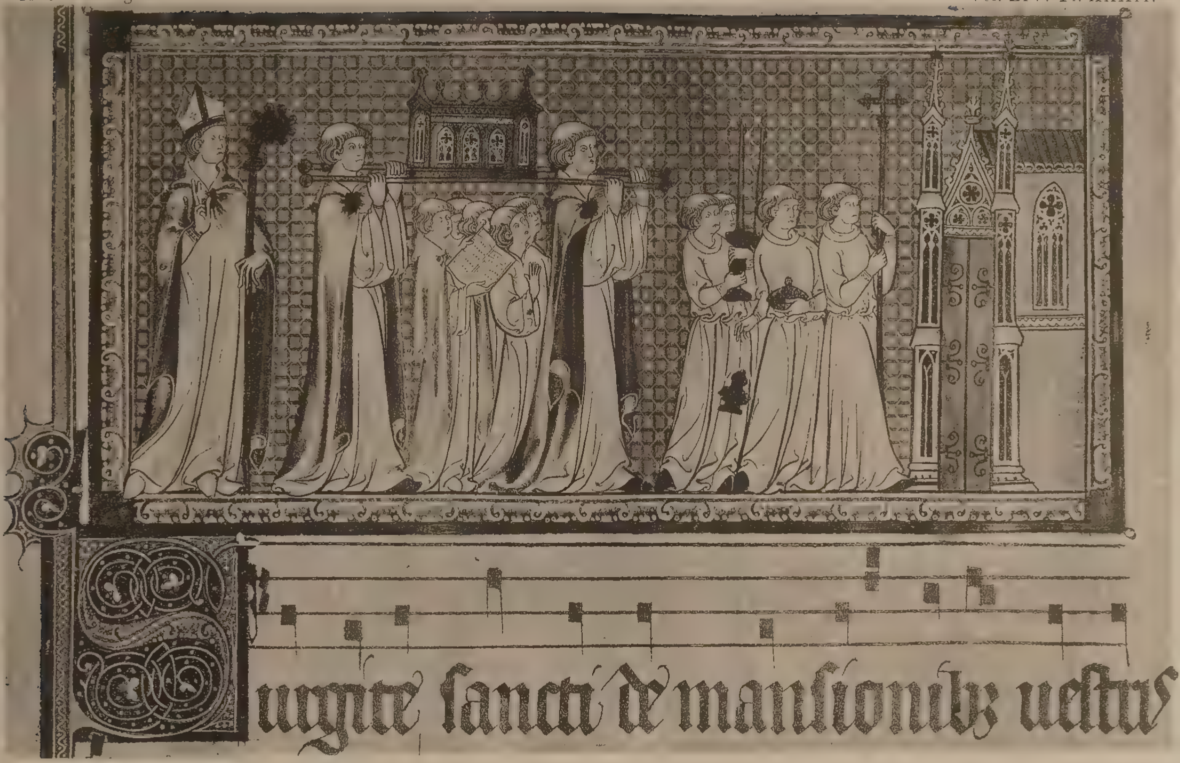
[b] This is printed at length in Hittorp's *Ordo Romanus*, p. 120, but is not given in full in the Pontifical.



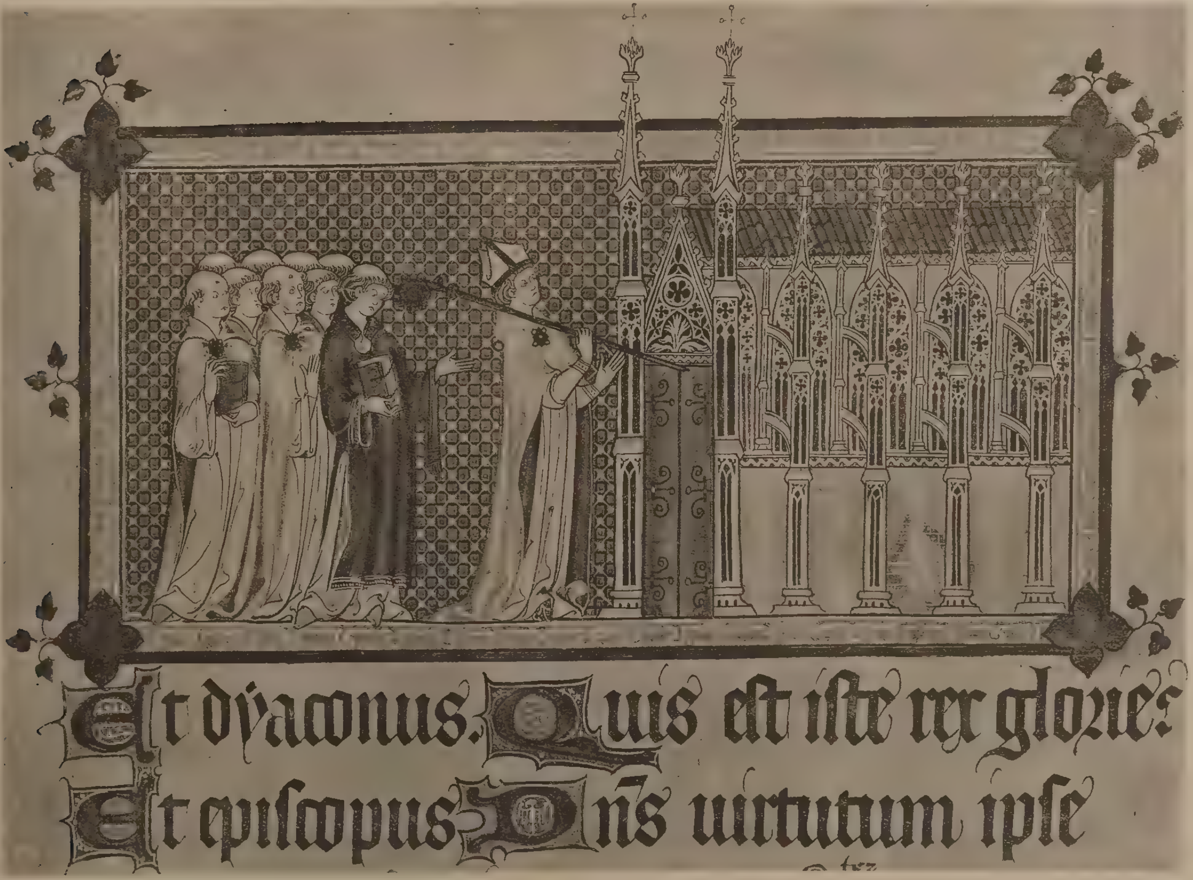
Ordo in dedicatione ecclesie. Pridie an
tequam ecclīa consecretur. deferantur
reliquie in loco honesto extra ecclesiā sub
tentorio. fiantque ibi uigilie ꝑ totam noc

BROOKE PONTIFICAL.—WATCHING THE RELICS (fo. 1).

1.


Surgite ſancti de manſionibz ueſtris

2.


Et dyaconus. Quis eſt iſte rex glorie?
Et epiſcopus Dn̄s uirtutum ipſe

BRÓOKE PONTIFICAL.—
1. PROCESSION WITH THE RELICS (fo. 5*b*).
2. BISHOP KNOCKING AT THE CHURCH DOOR (fo. 11).

preceded by cross-bearer, thurifer, and light-bearers, followed by the bishop and accompanied by the choir singing, *Surgite sancti de mansionibus vestris.* This procession is seen on fo. 5 b (Plate XXXII., fig. 1).

After an anthem and a prayer, the door of the church is reached, and the bishop knocks three times at the door of the church and is answered by the deacon within. In the intervals between the knockings the procession with relics makes the circuit of the church, and at the first round the bishop sprinkles the lower part of the walls, at the second the middle part, and at the third the upper part (*circa tectum*). This part of the service is nearly the same as in the modern Roman Pontifical, except that some of the responds and versicles are different, but they are almost identical with those in the *Ordo Romanus.* On fo. 7 and fo. 8 are pictures of the bishop sprinkling the lower part and the middle part of the walls. These two are almost alike, and on fo. 7 b and fo. 11 (Plate XXXII., fig. 2) the bishop is seen knocking at the door and saying, *Tollite portas*, etc. whilst the deacon, who should be inside the church to answer, *Quis est iste rex glorie?* is represented in red dalmatic standing immediately behind the bishop, and in the attitude of speaking.

When the door of the church has been opened, the bishop enters accompanied by a few clerks, whilst the others remain outside with the relics, and the door of the church is closed. Then again is said a short litany, which has been already referred to as containing the name of St. Clement, first bishop of Metz, among the four Confessors invoked. The next picture (fo. 11 b) shows the bishop kneeling at a faldstool, covered with a fringed cloth of rich design. His clergy kneel behind him, and the altar is already vested with a white cloth hanging in rich folds and adorned with an image of Our Lady with her Divine Child and two lighted candles. The vesting of the altar at this point of the ceremony is probably due to the artist's anticipation.

The next picture on fo. 14 (Plate XXXIII.) shows the bishop in the act of performing the well-known ceremony of writing the Greek and Latin alphabets with his crosier on two lines of ashes sprinkled on the floor of the church, and connecting diagonally the four corners. The Greek alphabet,[a] which is placed below the picture, includes some letters of rather singular form. The twenty-four letters of the Greek alphabet which are generally used, are here augmented by three characters which had fallen out of use as letters, but were retained for service as numerical signs. These are the sixth letter, an altered form of the Digamma, which here takes the form of S, and designates 6, Koppa, used for 90, and the last, Sampi, which represents 900. On the other hand Rho and Sigma seem to have been accidentally omitted, so that the number of letters is here only twenty-five, instead of twenty-seven which is found in French Pontificals, such as that of Noyon, of which a facsimile is given by Martene.[a]

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[a] In writing the Greek Alphabet the Metz rubric orders the bishop to commence *de dextro angulo ab oriente.* The *Ordo Romanus*, on the contrary, says *de sinistro angulo.* Perhaps the same corner is meant in both places. The rubric of the Roman Pontifical makes the matter clear by saying *ab angulo Ecclesiæ ad sinistram intrantis.*

The next ceremony in the Pontifical is the blessing of Gregorian water, of which there are many illustrations in the initial letters; but we have no more large pictures till we come to the consecration of the altar. On fo. 23 b the bishop is seen standing by the altar making a cross on it, with his thumb dipped in holy water. Both the solid base of the altar and the *mensa* appear to be of green marble, but in subsequent pictures the latter is white. The front of the altar is panelled. On fo. 29 the service for the separate consecration of an altar commences, and the picture on fo. 29 b shows the bishop in the act of blessing the altar. On fo. 30 the picture is very similar to the last but one, and on fo. 31 b (Plate XXXIV., fig. 1) the bishop is seen anointing the altar with oil, while a clerk in cope with chrismatory stands behind him; and the same subject is repeated on fo. 32 b.

At this point, between fo. 32 and fo. 33 (as now numbered), there is unfortunately a leaf missing, and the *Ordo Romanus* shows that the missing matter must have consisted of the anointing of twelve crosses on the walls (three on the east, three on the south, three on the west, and three on the north). The leaf was probably stolen from the book for the sake of the beauty or interest of the picture illustrating this subject.

There is yet another leaf missing between fo. 33 and fo. 34, but in this case the subject-matter which must have occupied the missing leaf does not suggest any special reason for its abstraction. The two leaves just referred to are the only ones which are wanting. The first of them may possibly be still in existence in some scrap-book, to which it may have been consigned by a rapacious collector.

The altar having been now prepared for the reception of the relics to be enclosed in it, the relics are brought in solemn procession to the church; and at fo. 41 b we have a procession very similar to that at the commencement of the dedication, when the relics were carried three times round the church.

On fo. 43 b (Plate XXXII., fig. 2) the bishop is seen in the act of hallowing the

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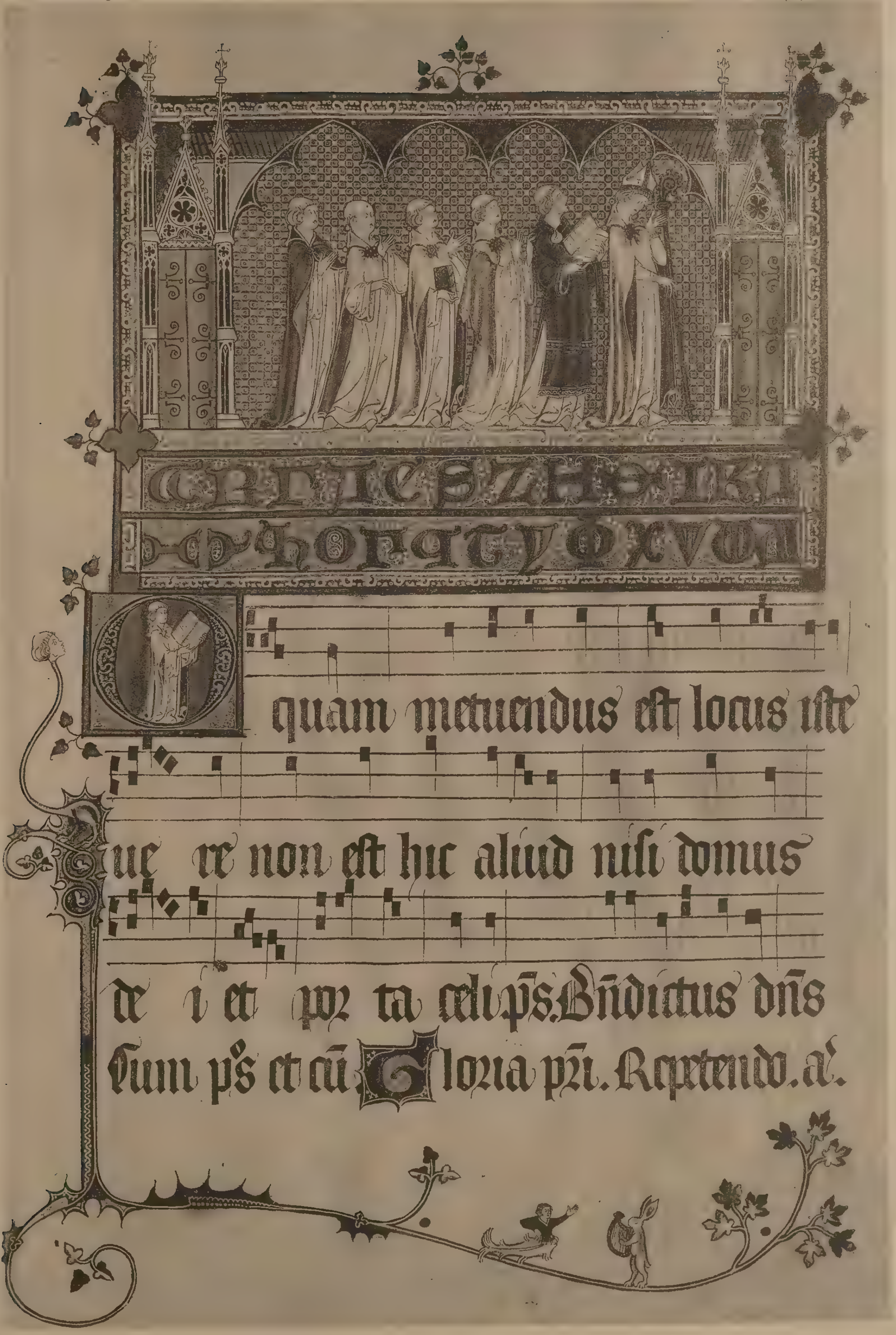
[a] *De Antiquis Ecclesiae Ritibus*, Venetiis, 1783, ii. 261.



O quam metuendus est locus iste

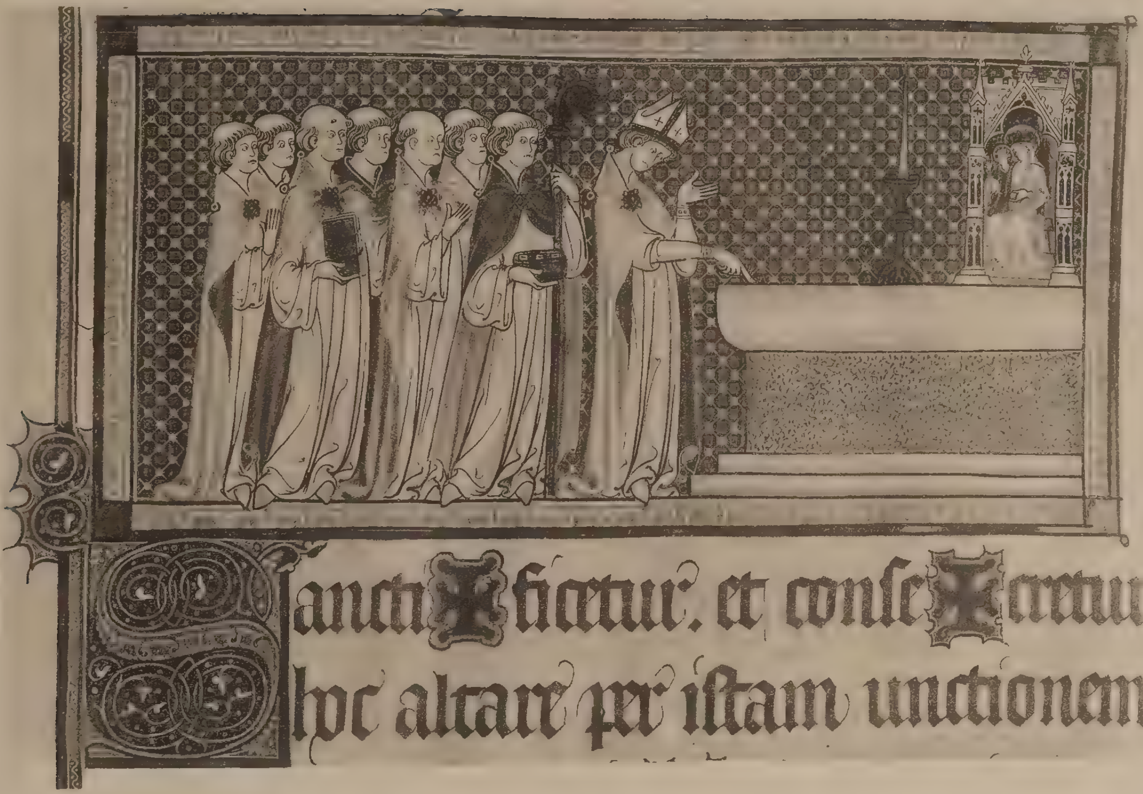
Vere non est hic aliud nisi domus

de i et por ta celi. p̄s. Bn̄dictus dn̄s

ſum p̊s et cū Gloria pr̄i. Repetendo. a.

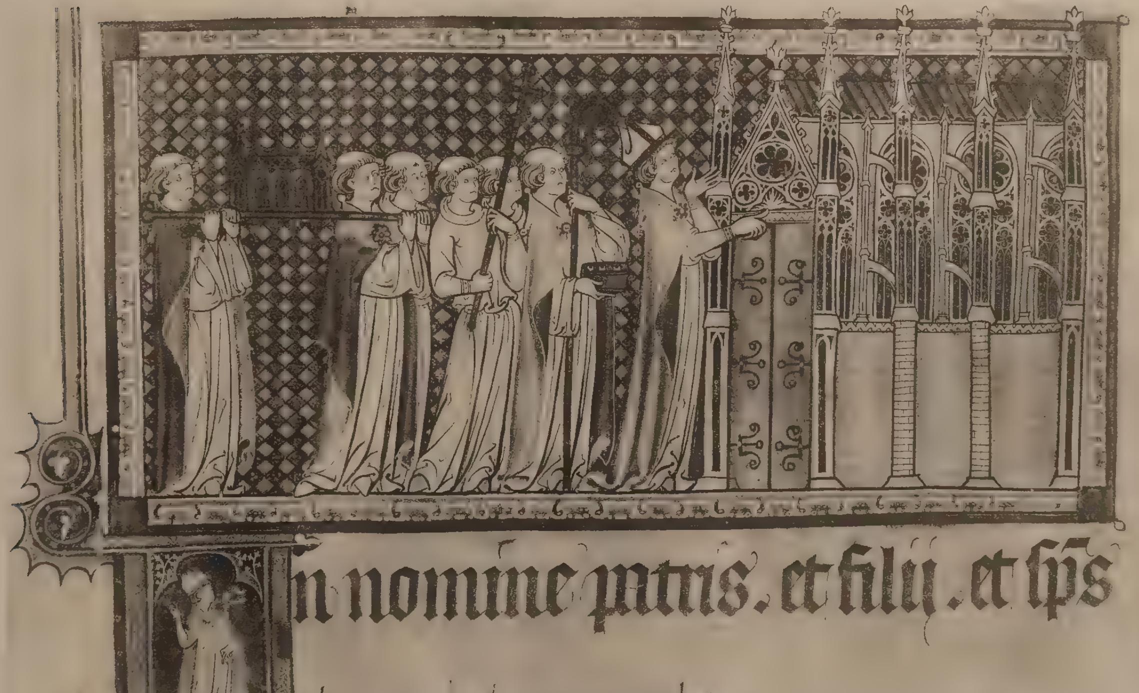
BROOKE PONTIFICAL.—BISHOP WRITING THE ALPHABET ON THE FLOOR (fo. 14).

1.



Sanctificetur. et consecretur hoc altare per istam unctionem

2.



In nomine patris. et filij. et sp̄s

BROOKE PONTIFICAL.— 1. BISHOP ANOINTING THE ALTAR (fo. 31*b*).
2. BISHOP HALLOWING THE CHURCH DOOR (fo. 43*b*).

door through which the sacred relics are to enter the church; and after the *confessio* or sepulchre has been duly prepared by unction with cream for the reception of the relics, they are placed in the sepulchre, as is well shown on fo. 46 b (Plate XXXV., fig. 1). The sepulchre is near the top of the front of the altar, and at its extreme right. A document with the bishop's seal upon it is enclosed at the same time, as shown in the picture and described in the rubric.[a]

In the picture which immediately follows, fo. 47 b, the sepulchre is closed with a slab of the same green stone of which the solid base of the altar is constructed, and the bishop is in the act of anointing it.

In the last picture connected with the dedication, the bishop having completed the ceremony, comes out of the vestry richly vested, and prepares to celebrate the mass *Terribilis* (fo. 50, Plate XXXV., fig. 2). The principal point to be noticed here is that the bishop wears the unusual ornament known as the *super-humerale.* This consists of two circular disks of gold or gilt metal on each shoulder, connected across the breast by an ornamental band. There is an ornament of this kind in the treasury at Paderborn, which is figured in Bock.[b] It was also worn by the bishops of Regensburg and the bishops of Liège, and it appears on the effigy of St. Lambert on the coins of the latter. It is also well seen on thalers of the bishops of Eichstädt, on which the effigy of St. Willibald is so adorned. I am not aware that it occurs on the coins of any bishop of Metz, but it is sometimes seen on the effigies of St. Adelph and St. Arnulph, early bishops of that see.[c]

Of the offices which next follow, it is not necessary to say more than a few words. The benediction of an abbot of monks is illustrated by five pictures. In the first (fo. 63) the bishop is seated on a faldstool, and the abbot elect is kneeling before him. The monks behind wear the Benedictine dress. In the second (fo. 66) the bishop, clergy, and abbot elect are kneeling at the litany. On fo. 70 b the bishop is laying his hands on the head of the abbot, and the two remaining pictures (on fo. 72 b and fo. 73) show the bishop in the act of giving to the abbot the rule of his order and the crosier.

In the office alternative words have been added above the line to enable it to be used for blessing more than one abbot at a time. It was also originally written for an abbot observing the rule of St. Benedict, but an alternative form has been added for one following the rule of St. Augustine.

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[a] *Deinde ponat intra in confessionem tres partes de incenso cum litteris sigillo episcopi sigillatis; et tunc recludantur reliquie in confessionem* (fo. 46).

[b] Franz Bock, *Geschichte der liturgischen Gewänder des Mittelalters*, Bonn, 1859, i. 373, Taf. v.

[c] Cahier, *Charactéristiques des Saints*, Paris, 1867, i. 375.

In the next office for the benediction of an abbot of canons, the single picture on fo. 79 is nearly the same as at the beginning of the benediction of an abbot of monks, but the dress is changed from the black Benedictine habits of the monks to one consisting of surplices with black choir copes.

Three pictures (on ff. 82b, 89, 90b) illustrate the benediction of an abbess of nuns, and these are almost similar to the corresponding pictures for the benediction of an abbot. It may be noticed that the abbess and the abbot of canons have silver crosiers, whilst the abbot of monks has a gilt crosier.

The abbess of canonesses is shown on fo. 92b, where the dress consists of a white tunic and mantle with a black veil. (Plate XXXVI., fig. 1).

The order for the holding of a synod which commences on fo. 98 has an unfinished picture at the beginning, which has been spoilt by the daubing in of the colours by a clumsy hand. Fortunately this is the only picture in the book which has been tampered with in this manner. This office differs considerably from that in *Ordo Romanus*, but the differences need not here be described.

The order for the consecration of a bishop is the last contained in this MS., and it closely follows the lines of that printed by Hittorpius,[a] which is described as being *secundum Gallorum institutiones*. The principal differences are as follows. The Metz Pontifical contains a preliminary inquiry as to the fitness of the bishop to be consecrated, followed by two collects. Then comes the usual address beginning, *Antiqua Sanctorum Patrum institutio*, and the examination of the bishop himself. The profession of canonical obedience is made immediately before the introit of the mass. During the singing of the offertory the newly-consecrated bishop offers to his metropolitan two large loaves, two flasks of wine, and two great candles. There is no mention of this ceremony in the older *Ordo*, but it is found in the modern Roman Pontifical, according to which it takes place after the offertory has been sung. Again, the Metz Pontifical has a form for the blessing and giving of the mitre which is not found at all in the older *Ordo*. This takes place, not before the gospel, when the ring and crosier are given, but immediately after the bishop has been communicated in both kinds by his metropolitan, and before the singing of the *Communio*. The episcopal benedictions which are given in this Pontifical are not found in the *Ordo*. Throughout the service the rubrics are much fuller than in the *Ordo*, which is altogether not so closely followed as in the case of the dedication of a church.

This office for the consecration of a bishop has twelve unfinished pictures. These, however, are of considerable interest, and they show the hand of a

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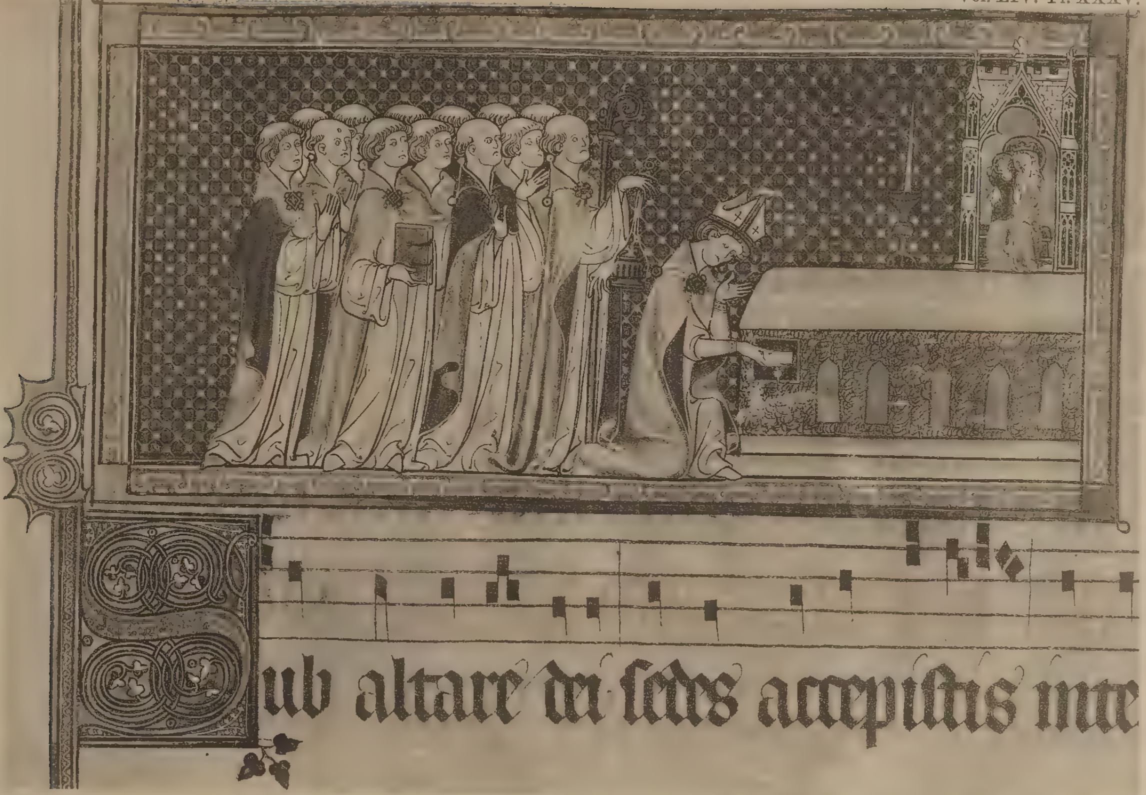
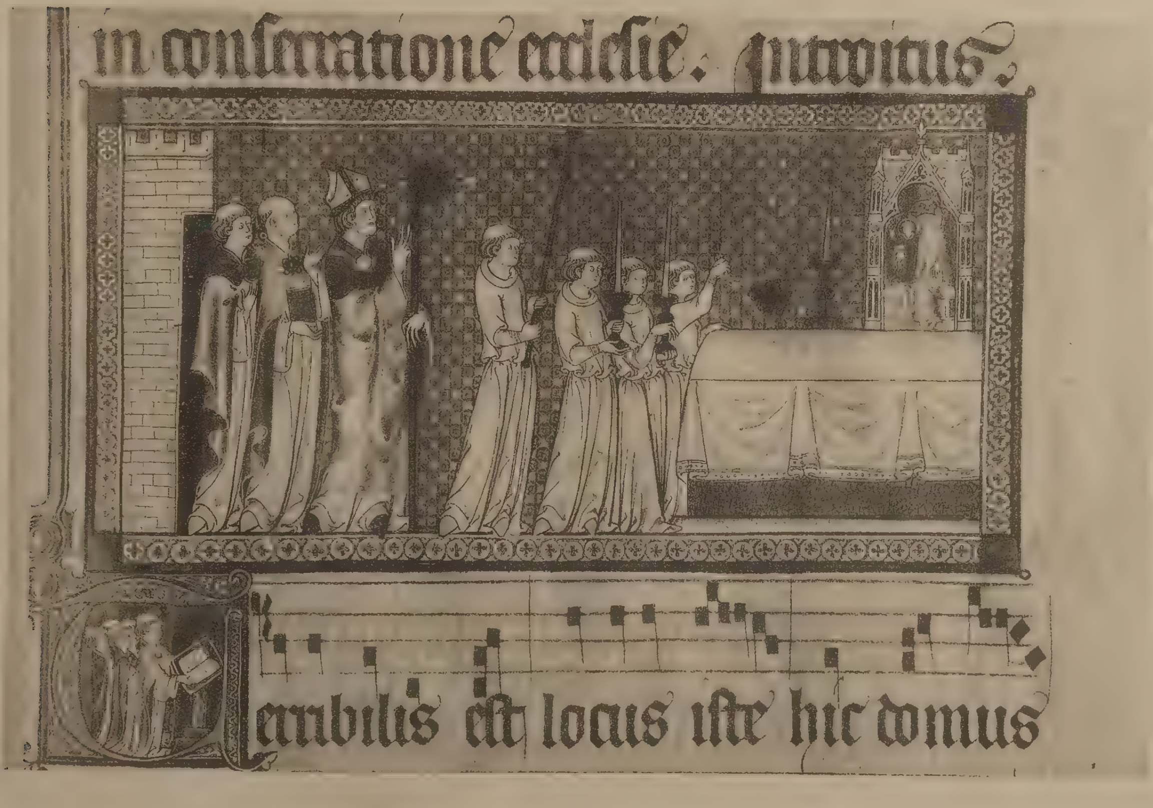
[a] *De Divinis Cath. Eccl. Officiis*, Parisiis, 1624, 107.

1.

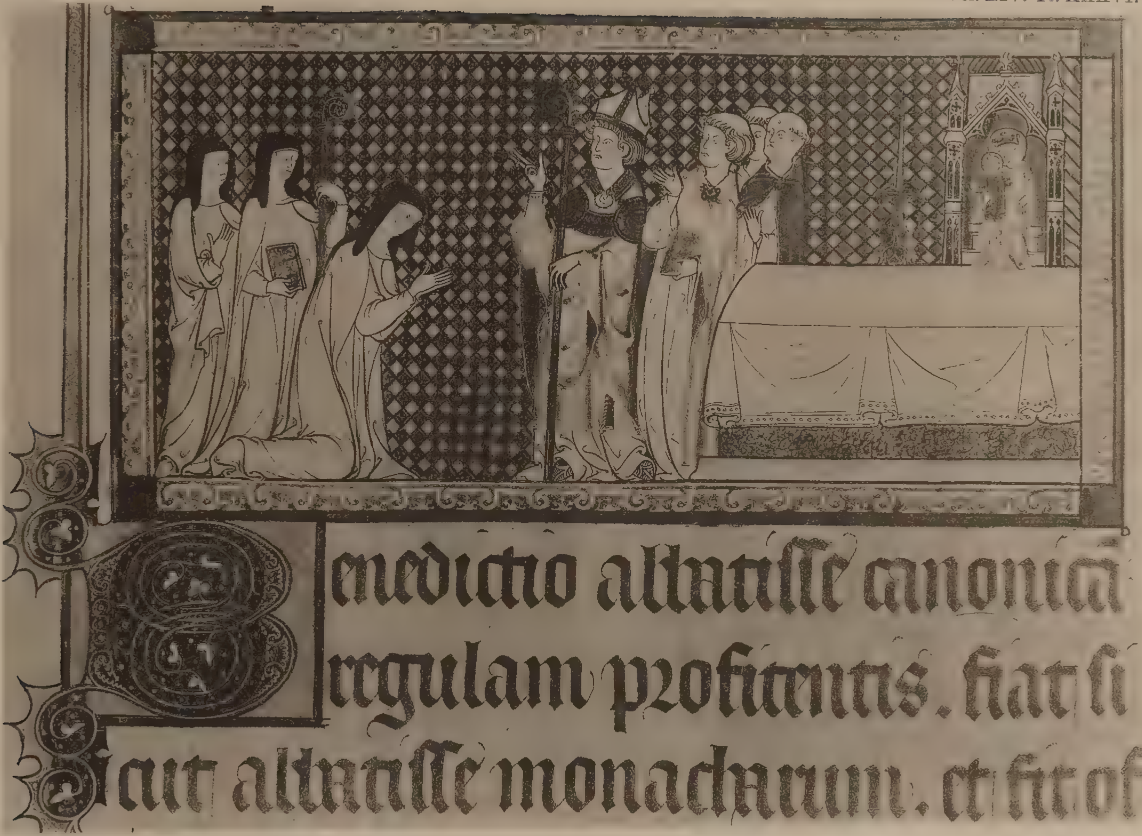

Sub altare dei ſedes accepiſtis inte

2.


in conſecratione eccleſie. Introitus.
Terribilis eſt locus iſte hic domus

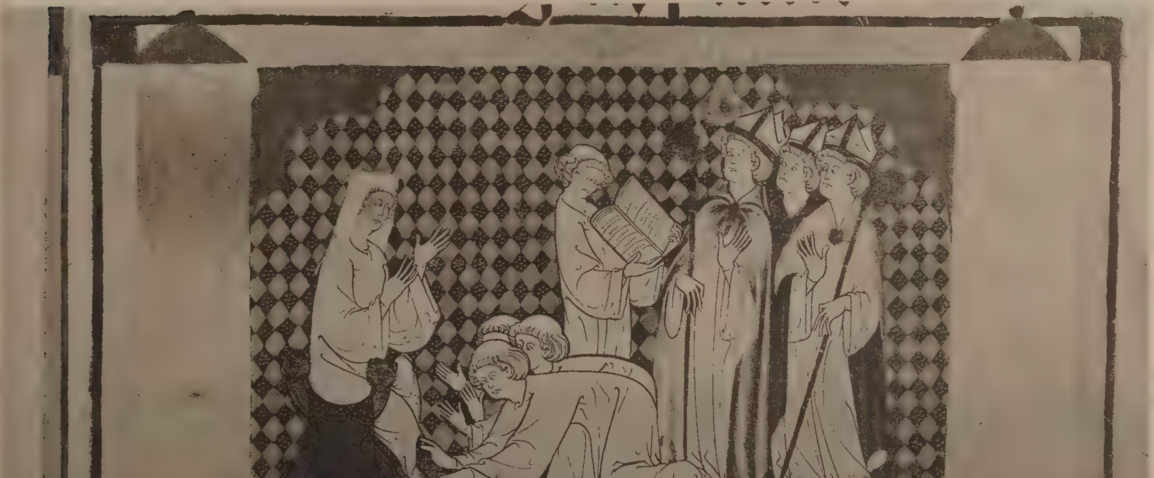
BROOKE PONTIFICAL.—{ 1. BISHOP PLACING RELICS IN THE ALTAR (fo. 46).
2. PROCESSIONAL ENTRY FOR THE DEDICATION MASS (fo. 50).

1.



Benedictio abbatiſſe canonicā
regulam profitentis. fiat ſi
cut abbatiſſe monacharum. et fit of

2.



Quando induitur manicas dicat.

BROOKE PONTIFICAL.— { 1. BLESSING AN ABBESS OF CANONESSES (*fo. 92b*).
2. VESTING A BISHOP-ELECT (*fo. 115*).

masterly draughtsman. One of the most interesting is on fo. 115 (Plate XXXVI., fig. 2), where the bishop elect is seated on a faldstool, and three clerks are putting on his buskins.[a] Drawn over his head is seen the almuce (*almutium*), which is seldom or never represented as worn in that manner in England. But in French art canons are often so distinguished, as for example in the *Liber Regalis* of Charles V. of France, dated 1365, where one of the canons of Rheims in the procession which meets the king at the entrance of the cathedral church is so vested.[b] In Scotland, too, this mode of wearing the almuce may be seen at St. Machar's, Aberdeen, where several effigies of canons vested in chasubles have the almuce drawn over their heads.

Other pictures show the metropolitan (who in the last eight is represented as wearing the *super-humerale*) performing the acts of laying hands on the head of the bishop-elect (fo. 117), anointing his head (fo. 123) and his hands (fo. 127), giving the ring (fo. 129, Plate XXXVII., fig. 1), the crosier (fo. 130), the book of the gospels (fo. 131), and the mitre (fo. 136 b). Perhaps the most interesting is that on fo. 132 b (Plate XXXVII., fig. 2), which shows the bishop making the offering of bread, wine, and candles to his metropolitan, whilst at the same time he kisses his extended hand.[c] The newly consecrated bishop, who is kneeling, has the linen band still wrapped round his head which was placed there before the unction of his crown.

Having now rapidly reviewed the general contents of the book, we must, before parting with it, pay some attention to its purely ornamental features. The initial letters and borders are of singular beauty and great interest. The large initial letters are sometimes filled with scroll patterns of most intricate design; at other times they are filled with shields of arms now erased, whilst many of them are historiated with subjects illustrating Pontifical ceremonies. But in the lower margins the artist felt himself at liberty to indulge his exuberant fancy by pictures and caricatures of the life around him, and by the creation of legions of delightful animals who gravely mimic the doings of mankind. We cannot help feeling that the bishop who had this book held before him must have been more than human if his eye did not sometimes wander from the matter of the text to seek refreshment in these charming pictures of the animal world turned topsy-turvy.

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[a] This has been already figured and commented on by Dr. J. Wickham Legg in his paper on "The Black Scarf of Modern Church Dignitaries and the Grey Almuce of Mediæval Canons," in *Transactions of the St. Paul's Ecclesiological Society*, iii. 48.

[b] British Museum, Cott. MS. Tiberius, B 8, fo. 43.

[c] The rubric is as follows: *Deinde cantetur offertorium . et dum cantatur offertorium . consecratus offerat consecratori duos magnos panes . et duas fialas uini . et duos magnos cereos . et consecrator oblata leuiter tangat. Facta autem oblatione consecratus osculetur manum consecratoris.* (fo. 132).

The scenes taken from everyday life are drawn with great spirit. Amongst them may be noticed a fox carrying off a cock, while two half-clad peasants are in pursuit, the man with a pitchfork and the woman with a distaff (fo. 1 b). Then we have brought before us the sports of the period in games of bowls (fo. 103), walking on stilts (fo. 116), a game resembling "hot cockles" (fo. 98), bear dancing (fo. 92), and numerous scenes of hawking and shooting birds. Sometimes we find fables such as that of the fox and the crow (fo. 87), or such legends as that of the unicorn (fo. 81 b and 131 b).

But perhaps the humour of the artist is seen at its best in those pictures of the animal world in which hares are the leading actors. Of the one hundred and five historiated borders the hare appears in no less than forty-eight. In one picture only does the hare appear as the persecuted victim of the lords of creation, viz. on fo. 77 b, where a man is carrying a dead hare over his shoulder. In all other cases the hare meets man on terms of equality, and either engages in the ordinary occupations and amusements of life, such as playing the organ (fo. 79 b, Plate XXXIX., fig. 3), dancing to music (fo. 115), and so on, or at other times he wages warfare against his hereditary enemy, and the tables are nearly always turned and the hare comes off victorious. The great scene of all is an attack on a castle, which is planned and carried on by valorous hares in accordance with the methods of mediæval warfare (fo. 41, Plate XXXIX., fig. 4). Of the knights defending the castle, one is armed with a cross-bow and another is hurling a stone. The attacking party consists of five hares; one is using the cross-bow, another is working with a pickaxe at the foundations of the castle, another still more valiant is climbing the scaling ladder, while a fourth is working an engine for throwing stones. One hare only has paid the penalty of his rashness, and is lying on the ground crushed by a stone, whilst his fore-paws, united in the act of prayer, show that the hares combined piety with their valour.

A good example of a judicial duel is given on fo. 104b. (Plate XXXVIII., fig. 4), the combatants being a man and a hare. The former is clothed in a close-fitting dress, which leaves the face, hands, and feet bare. Each of them is armed with a spiked club and a pointed shield, suited for attack as well as for defence.[a]

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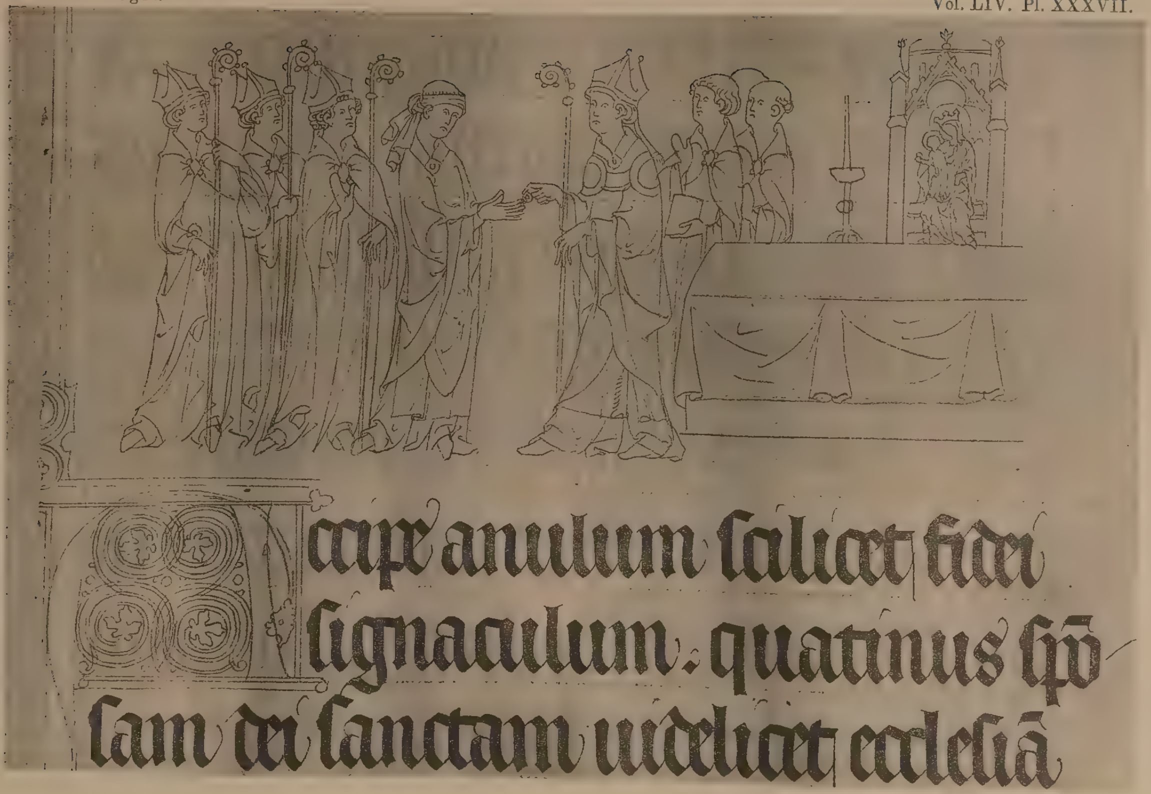
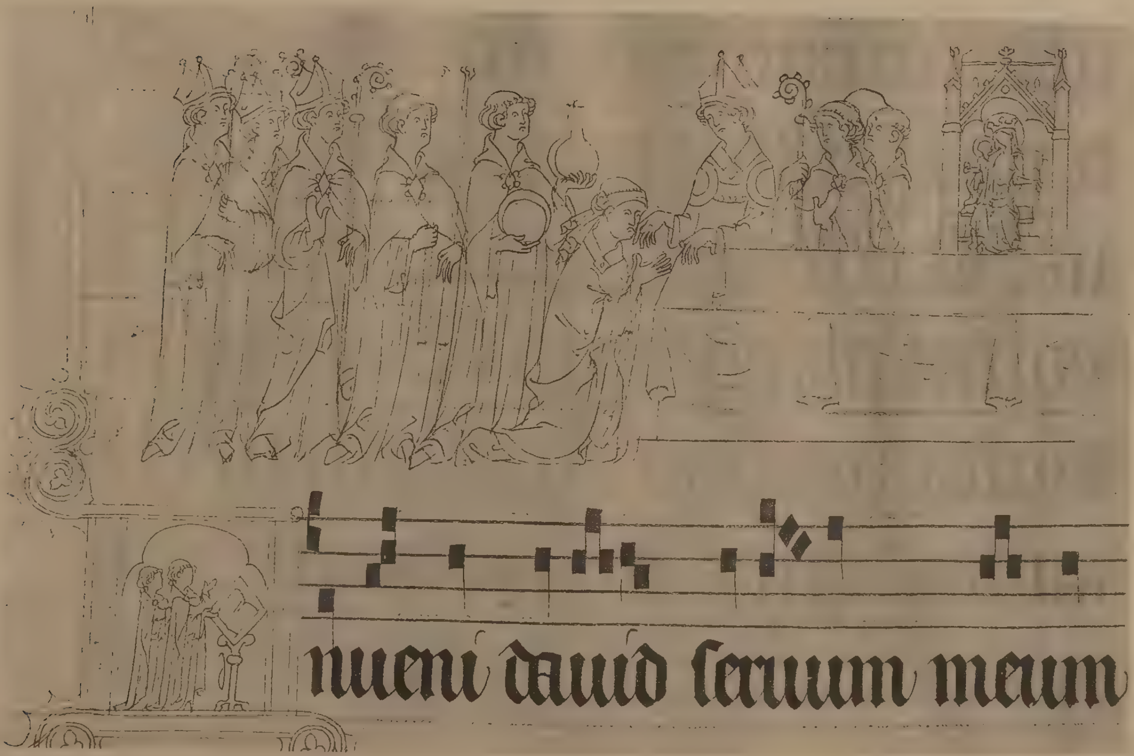
[a] For an interesting account of combats of this kind reference may be made to a paper by Mr. R. L. Pearsall, in "Some Observations on Judicial Duels, as practised in Germany" (*Archæologia*, vol. xxix. 348). The combat in the Brooke Pontifical may be compared with the plates which illustrate this paper, especially with Plate XXXV., fig. 1.

1.

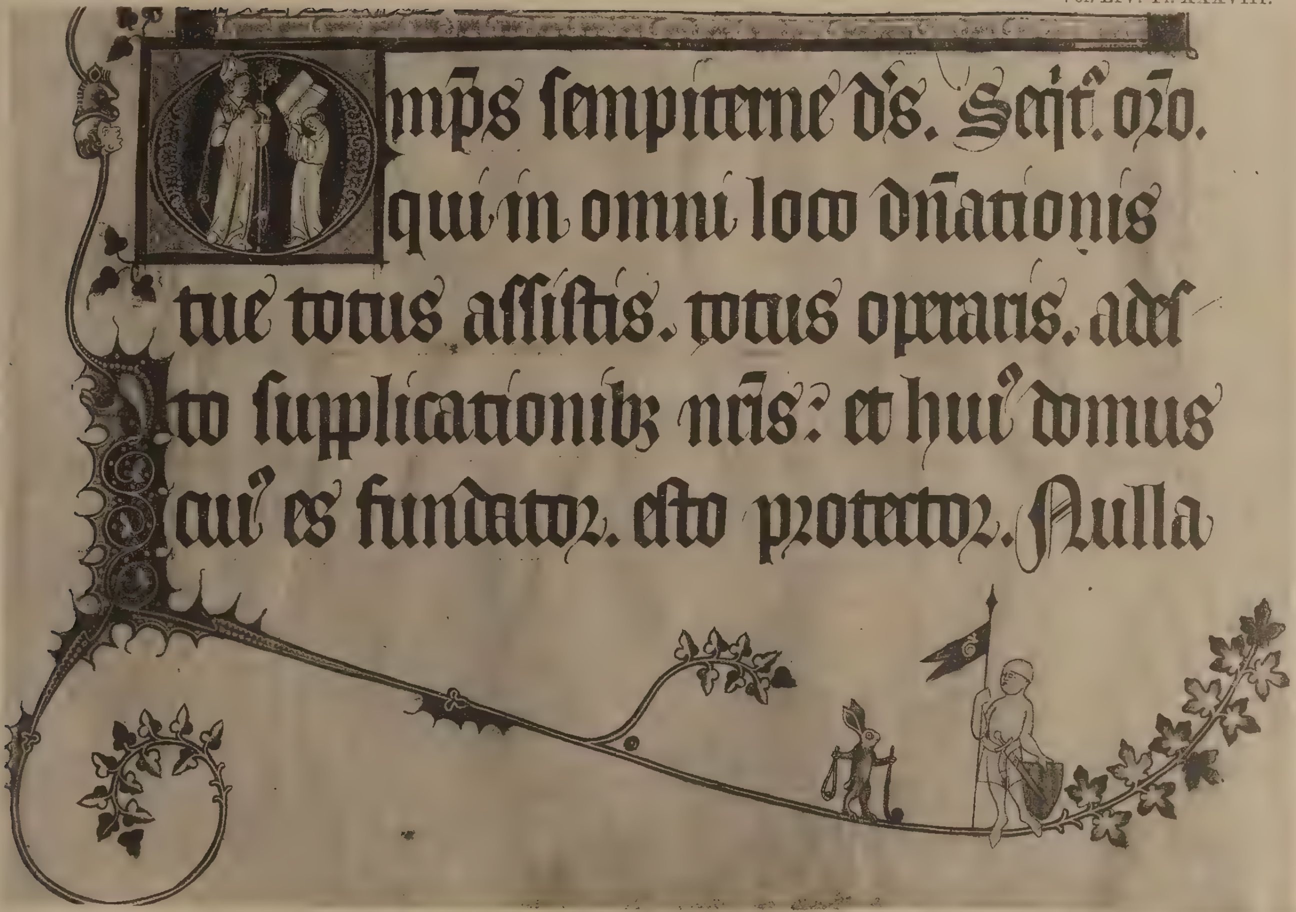

ccipe anulum ſcilicet fidei
ſignaculum: quatinus ſpō
ſam dei ſanctam uidelicet eccleſiā

2.



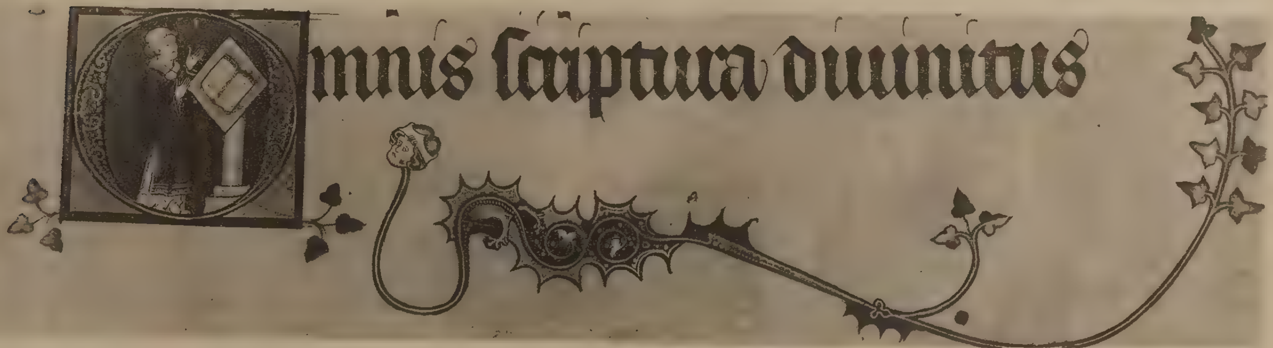
BROOKE PONTIFICAL.—1. GIVING THE RING TO A BISHOP (fo. 129).
2. BISHOP OFFERING BREAD, WINE, AND CANDLES (fo. 132*b*).

1.



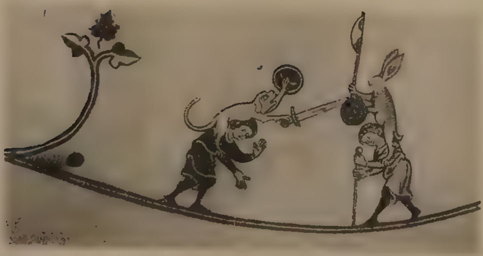
mp̄s ſempiterne d̄s. Seq̄t. orō.
qui in omni loco dn̄ationis
tue totus aſſiſtis. totus op̄raris. adeſ
to ſupplicationibꝫ nr̄is: et hui⁹ domus
cui⁹ es fundator. eſto protector. Nulla

2.



mnis ſcriptura diuinitus

3.



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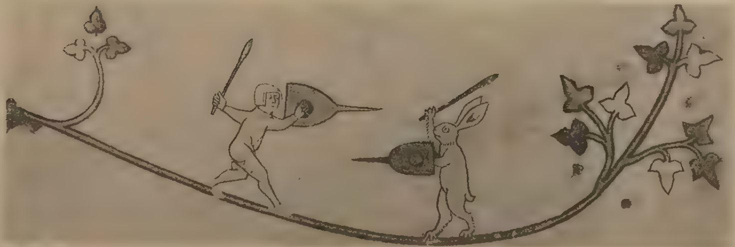


BROOKE PONTIFICAL.—ORNAMENTS OF LOWER MARGINS.

There are many other scenes in which hares take part deserving notice, but I will only direct attention to four of them. In the first, on fo. 7 (Plate XXXVIII., fig. 1), a hare armed with sling and staff is about to attack an armed knight, who on the pennon of his spear has a white snail on a red field for his armorial bearings, the group being evidently a parody of David and Goliath. In the second, on fo. 79 (Plate XXXIX., fig. 5), a hare is carrying off her two young ones in swaddling clothes, whilst a tailor holding a pair of shears seems anxious to exercise the instrument of his craft upon their skins. In another (fo. 48, Plate XXXIX., fig. 6) two hares are leading off to their dungeon a man they have captured, whose abject terror is shown by the way in which his hair literally stands on end. And lastly there is one in which the tables are turned upon mankind as completely as possible, for two hares have caught a man and are engaged in skinning him; one hare holds down his head, the other has already disengaged the skin of the man's right foot (fo. 74, Plate XXXIX., fig. 7).

Next to the hares the monkey is a favourite actor in these scenes, and appears some dozen times. The monkey simply performs ordinary human functions; sometimes he is spending his time in frivolous amusements, such as bird-catching; but more often he is engaged in the grave exercise of the profession of doctor of laws or of medicine. In one case he is seated with a doctor's cap on his head lecturing to an attentive class of his own fellow-species (fo. 76, Plate XXXIX., fig. 8); and in others he is practising the healing art. The patient in one case is a dropsical man supported on crutches (fo. 25, Plate XXXIX., fig. 9); and in another a stork holds up its left foot for the monkey to feel its pulse, whilst the latter carefully scrutinizes the glass containing the bird's urine before giving his diagnosis of the case (fo. 81, Plate XXXIX., fig. 10). With this physiological absurdity we must conclude the notice of the grotesques.

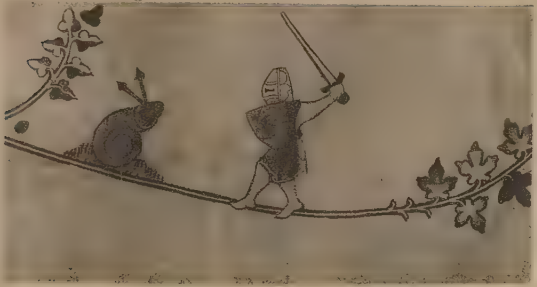
The pleasant duty remains to me of expressing my deep obligation to Mr. Thomas Brooke for his great kindness in allowing this precious MS. to remain in the Society's keeping for a lengthened period, in order to facilitate its full examination. I am also much indebted to Mr. W. H. St. John Hope for his advice in selecting the pictures which have been photographed, and for much help and encouragement whilst engaged in the preparation of this paper. To him also the Society owes a debt of gratitude for his good offices in inducing Mr. Brooke to allow this MS. to be brought to London.

LIST OF PLATES.

XXXI. Watching the relics (fo. 1).
XXXII. 1. Procession with the relics (fo. 5*b*).
    2. Bishop knocking at the church door (fo. 11).
XXXIII. Bishop writing the alphabet on the church floor (fo. 14).
XXXIV. 1. Bishop anointing the altar (fo. 31*b*).
    2. Bishop hallowing the church door (fo. 43*b*).
XXXV. 1. Bishop placing relics in the altar (fo. 46).
    2. Processional entry for the dedication mass (fo. 50).
XXXVI. 1. Blessing an abbess of canonesses (fo. 92*b*).
    2. Vesting a bishop-elect (fo. 115).
XXXVII. 1. Giving the ring to a newly-consecrated bishop (fo. 129).
    3. A newly-consecrated bishop offering bread, wine, and candles (fo. 132*b*).
XXXVIII. Ornaments of lower margins:
    1. Illuminated initial and parody on David attacking Goliath.
    2. Illuminated initial.
    3. Combat between a dog and a hare, mounted on men's shoulders
    4. Judicial duel between a man and a hare.
XXXIX. Scenes from lower margins:
    1. Knight attacking a snail.
    2. Knight's farewell before going forth to attack a snail.
    3. Hare playing upon a pair of organs.
    4. Hares attacking a castle.
    5. Tailor threatening a hare and her young.
    6. Hares leading a man to prison.
    7. Hares skinning a man.
    8. Monkey lecturing his class.
    9. Dropsical man consulting his leech.
    10. Stork consulting a monkey-doctor.

NOTE.—All the pictures are full size except that shown on Plate XXXIII., which is slightly reduced.

1.



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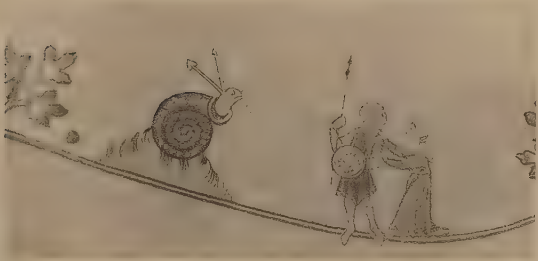

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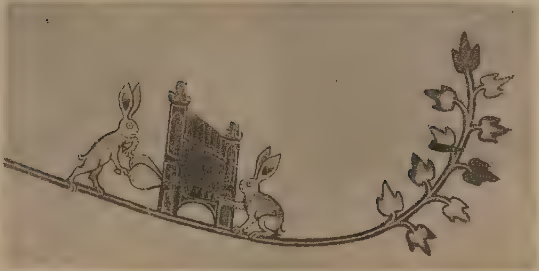

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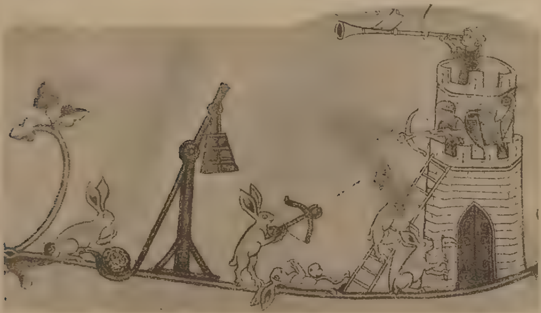

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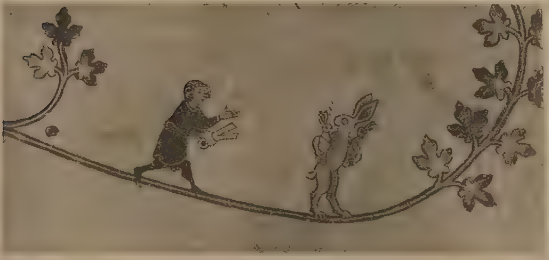

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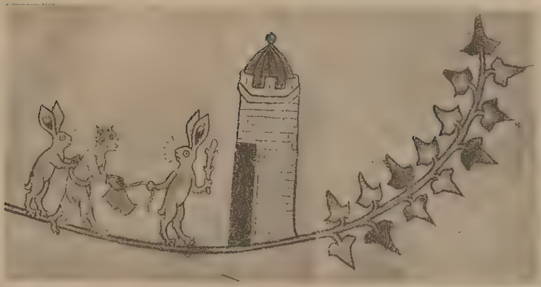

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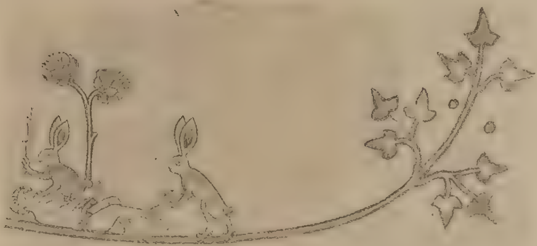

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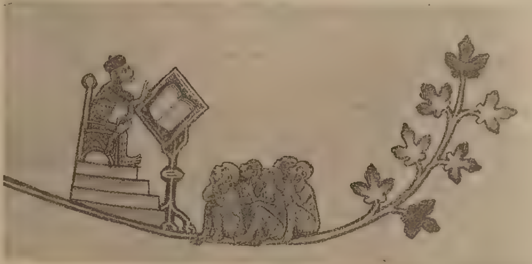

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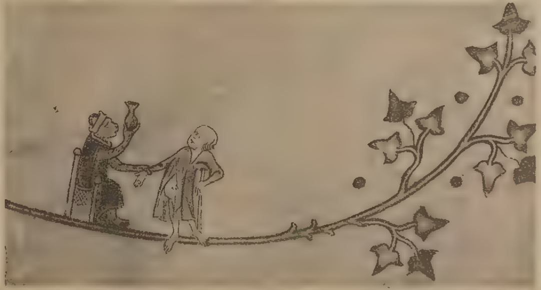

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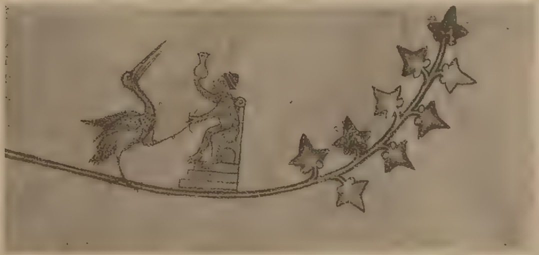


BROOKE PONTIFICAL.—SCENES FROM LOWER MARGINS.

XXII.—*On the Discovery of some Remains of the Chapter-house of Beverley Minster.*

By John Bilson, *Esq.*

Read March 15th, 1894.

The remains which are the subject of these notes are, unfortunately, but scanty, and belong to the undercroft of the chapter-house, rather than to the chapter-house itself. Still, slight as they are, they enable us to determine with sufficient accuracy the plan of what must have been a beautiful addition to this most beautiful church.

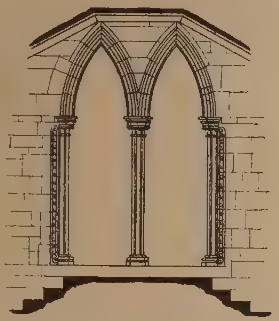
In 1188, Beverley Minster was seriously injured by fire. Of the church as it existed before the fire little or nothing now remains in position, but it is certain that the nave was preserved until it was taken down in the first quarter of the fourteenth century, when the present nave was commenced. It is clear, too, that the choir and transepts were not begun until some considerable time after the fire, probably not before about 1220. The new works were apparently planned without reference to the lines of the earlier building, except that the width of the nave within the aisle walls may have been followed in the new eastern arm. The works of the thirteenth century comprise the choir, with its eastern transept, the great transept, and one bay westward of the main crossing. The plan is remarkably regular and perfect, and was carried out with scarcely any departure from the original design.

Beneath the aisle windows, throughout the thirteenth-century work, the walls are enriched internally with an arcade of trefoiled arches supported by shafts of Purbeck marble, with carved capitals of the *crochet* type. In the north aisle of the choir, between the eastern and great transepts, the design of this wall arcade is very cleverly adapted to form a staircase of two flights, rising to a double doorway, which is now walled up (Plate XL.). In the centre, beneath the upper landing of the staircase, is a doorway with a semicircular arch of two orders, which now gives access to modern vestry buildings occupying the space between the eastern and great transepts, immediately north of the aisle wall.

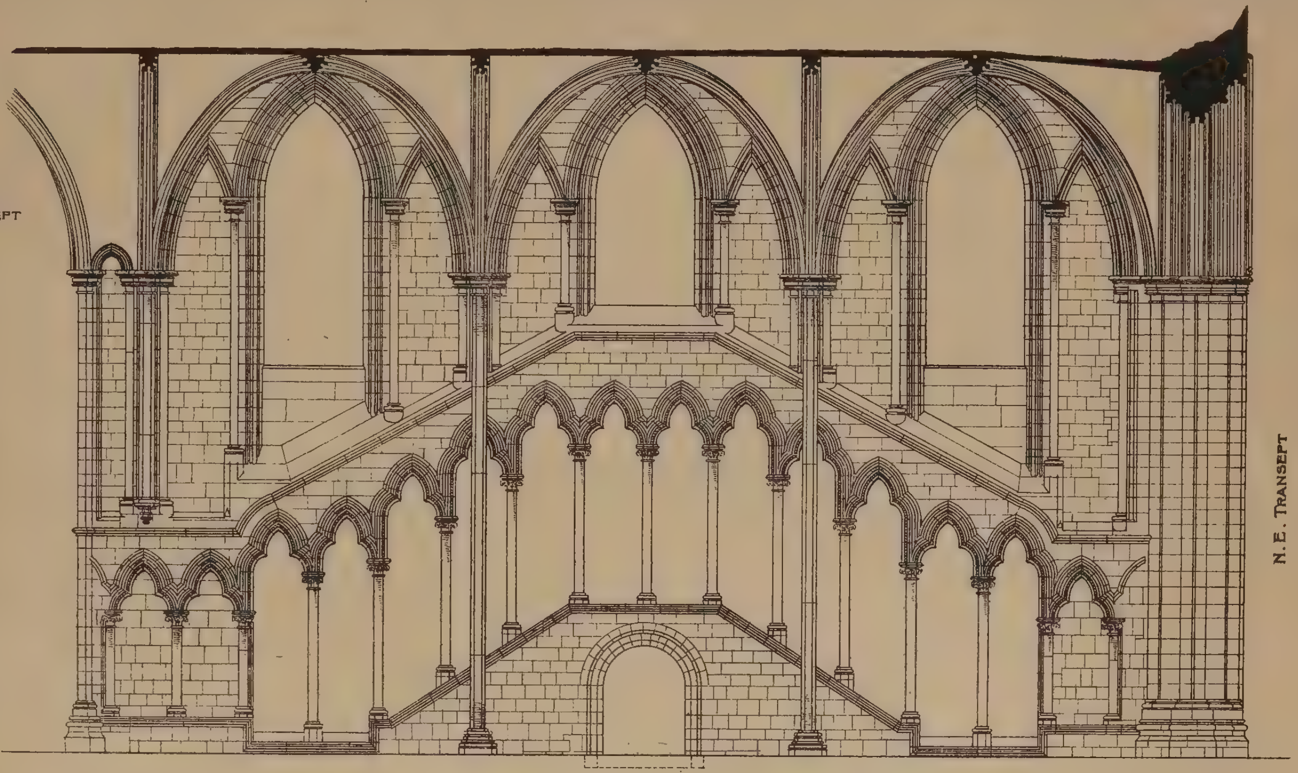
This staircase was generally supposed to have led to the chapter-house, but until recently proof of this supposition was wanting. In September, 1890, in excavating for a new rain-water drain, a considerable fragment of walling was found, to which Dr. Stephenson of Beverley at once called my attention as being part of the foundation of an octagonal chapter-house. Further excavations revealed other remains, which I will now proceed to describe in detail. The fragments of walling actually found are shown in black on the plan, on which the dotted lines and hatching represent conjecturally the complete structure. This was an undercroft of octagonal plan, surmounted by the chapter-house itself.

The wall first discovered (marked A on the plan, Plate XLI.) included the base-courses of the greater part of the length of the south-western face of the octagon, to a height, in the most perfect part, of 4 feet 7 inches above the foundation. A section of the base-course is shown on Plate XLIII. The two moulded courses are exactly similar in section to two of the mouldings in the base-course of the whole eastern part of the church itself, and are clearly of the same date. At the north-western extremity of this wall, part of the buttress at the angle between the western and south-western faces was found, with what appeared to be the sill and jamb-stone of a narrow doorway (B on the plan, Plate XLI.), possibly that of a newel staircase. At C, through the lowest course of the wall, and a few inches below the level of the undercroft floor (as subsequently ascertained), was a lead-lined channel, 5½ inches in width. The internal face of the wall had been removed on this side. At D the lowest courses of a wall parallel with the north wall of the modern vestry were found, the foundation of which was some 16 inches above that of the wall of the undercroft. This wall had a chamfered plinth. I believe it to have been part of a modern building removed when the vestry was erected. A modern doorway, now walled up, which had been broken through the wall at the west end of the back of the staircase, may have given access to this building.

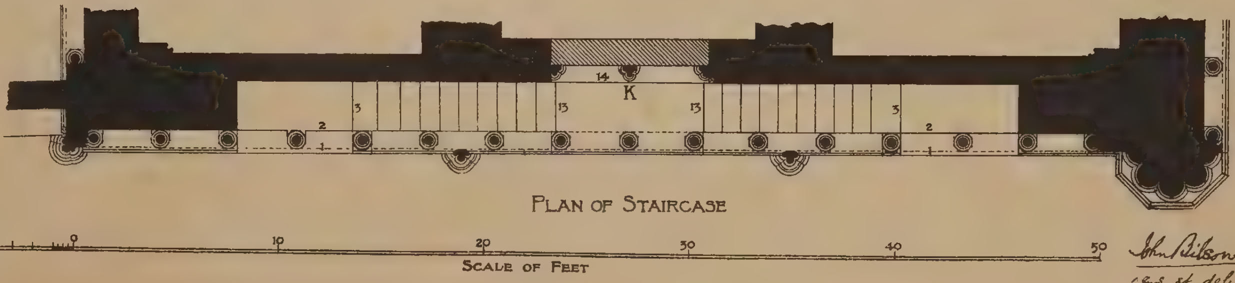
Outside the north-west angle of the eastern transept, at E on the plan (Plate XLI.), we found part of the base-course of the south-west face of the angle buttress between the eastern and south-eastern sides of the octagon. In this case the upper moulding was missing, but the lower moulding was returned upwards, as if to meet the base-course of the transept buttress. An elevation and perspective



Elevation of Doorway at top of Staircase at K



Section through North Choir Aisle looking North shewing Staircase to Chapter House



Plan of Staircase

John Bilson. mens et del. 1891

BEVERLEY MINSTER.—STAIRCASE TO CHAPTER-HOUSE.

sketch of this fragment are given on Plate XLIII., which also shows the relative height of the base-course of the transept buttress.

At F we found a fragment of the internal face of the south-east wall of the undercroft, as well as the rammed chalk bed upon which the floor was laid. The filling-in on the inside of this wall consisted of consecutive layers of stone chippings, rammed chalk, gravel, and small chalk, and at the top, extending over the walling, a layer of wood ashes.

The base of the central pier of the undercroft was found at G. This base had a chamfered plinth, octagonal on plan, with the angles of the octagon opposite the sides of the octagon of the building itself. Upon this plinth was a moulded base of a simple section (see Plate XLIII.) which is found in early thirteenth-century work at Lincoln and elsewhere, in out-of-the-way situations. Nothing remained of the pier itself, but the base-moulding showed that in plan it was a polygon of sixteen sides. As will be seen from the plan, this central pier is placed on the centre line of the staircase and of the corresponding bay of the choir, and is, in fact, set out so accurately that the actual centre deviated only 1½ inches from the centre, as worked out from the remains discovered before the pier base was found.

At the base of this central pier was also found a part of the stone floor of the undercroft, from which its level was ascertained to be 5 feet 6¾ inches below the floor level of the north aisle of the choir. The threshold of the double doorway at the top of the staircase is 7 feet 9½ inches above the level of the aisle floor. Assuming that this threshold represents the level of the chapter-house floor, the latter would be 13 feet 4¼ inches above the floor level of the undercroft. It is very likely, however, that this height would be increased by one or two steps at the doorway into the chapter-house itself.

I should add that all the masonry discovered was built of oolitic limestone from the Newbald quarries, the stone which was used for all the works in this church until the latter part of the thirteenth century.

It is much to be regretted that, after these discoveries had been made, the authorities would not allow any further excavations outside, especially as a trench dug outside the northern face of the north transept would not have interfered with any graves, and might have yielded further information as to the form of the angle buttresses. Everything was, however, covered up again, and the drawings which illustrate this paper are the only record of what was found.

In March, 1891, Mr. W. Stephenson and I obtained permission to excavate beneath the floor of the modern vestry, where we hoped to find the steps from the choir aisle to the undercroft. Our hope was realised. We found that, including the present step in the doorway under the staircase, there were six steps in all, with a stone sill at the bottom of the flight. The sill and lowest three steps were still in place, though the second step had been moved to receive a sleeper wall for the modern floor. The steps were considerably worn, and ashes were found on the sill at the foot of the flight. From this point, the floor of the passage sloped away rapidly towards the undercroft. The floor had been paved with tiles, and the mortar bed which received them still existed. Two broken pieces of the tile pavement were found in position. The tiles were of red baked clay, with yellow and dark green glaze, and covered with a pattern. We also found, at H, the inner face of the west wall of the passage leading to the undercroft, which fixed the width of the passage as about 10 feet 6 inches. The steps, etc. are shown on the plan (Plate XLI.), and section (Plate XLII.).

The filling-in of this passage consisted largely of fragments of moulded stonework. Some of these clearly belonged to the upper passage from the double doorway at the top of the staircase to the chapter-house itself. A vaulting-rib and a capital of a triple shaft are shown on Plate XLIII. These correspond in section with the arches and capitals of the double doorway, where the springings of the diagonal ribs of the vaulted passage are still to be seen. A piece of moulded bench-table found in this excavation is also shown on Plate XLIII.

From these remains we derive then the following conclusions. The building was octagonal in plan, and of two storeys in height. The undercroft was approached from the doorway under the staircase in the north aisle of the choir, by steps and a passage leading to a doorway in the south face of the octagon. The chapter-house itself was approached from the north choir aisle by the double staircase, and by a vaulted passage from the double doorway at the top of the staircase, leading to a doorway in the south face of the octagon. The undercroft was 28 feet 6 inches in internal diameter, and 38 feet 2 inches in external diameter above the base-course. The chapter-house itself was apparently about 31 feet in internal diameter, and, as the plan of the eastern part of the church is based on squares of 16 feet, it seems probable that the octagon was inscribed in a circle of 32 feet diameter, measured in the clear of the vaulting-shafts.[a] The undercroft was vaulted from a central pier. The chapter-house itself was doubtless vaulted in one span, without a central pillar; for the diameter of the pier of the under-

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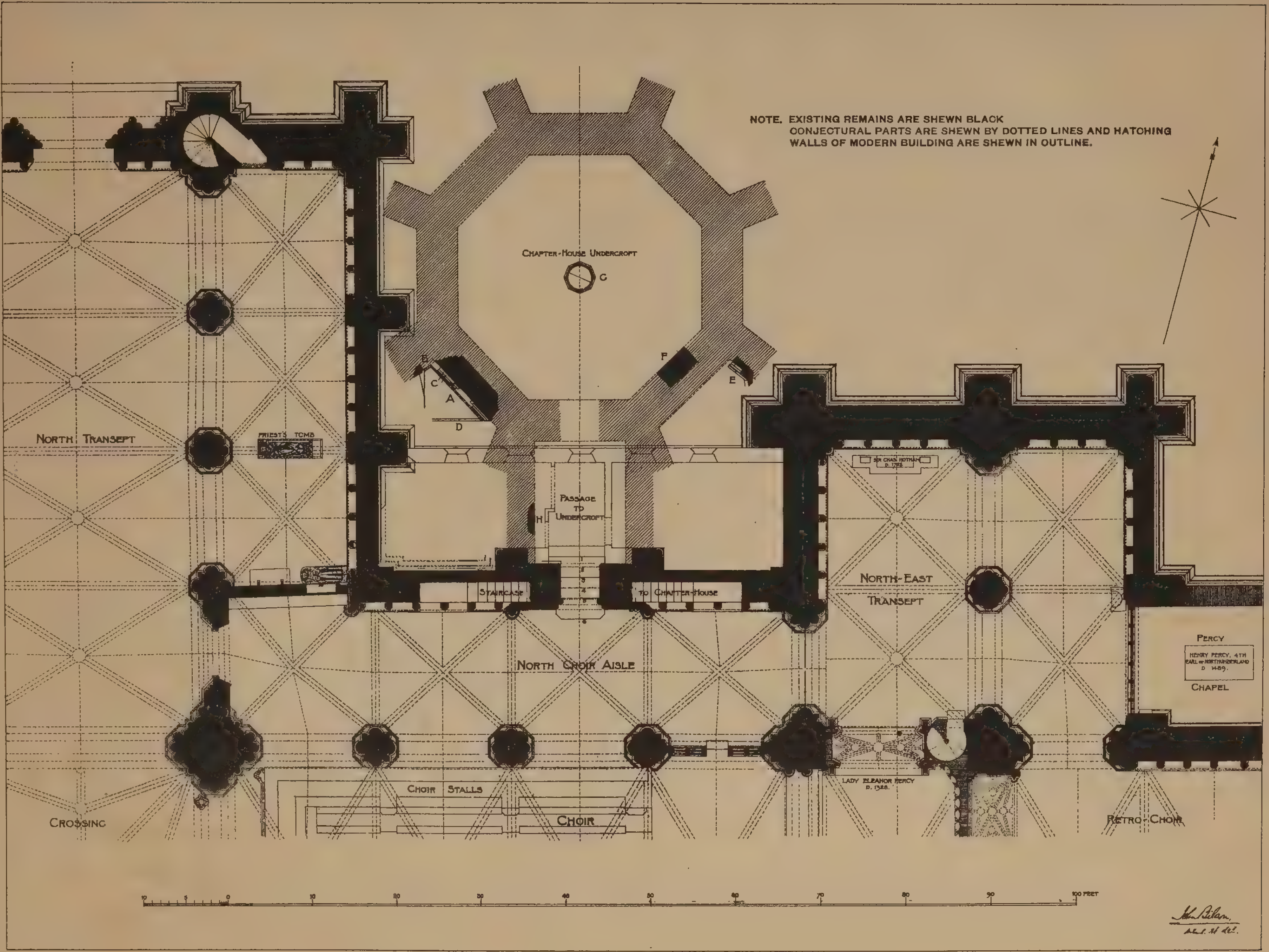
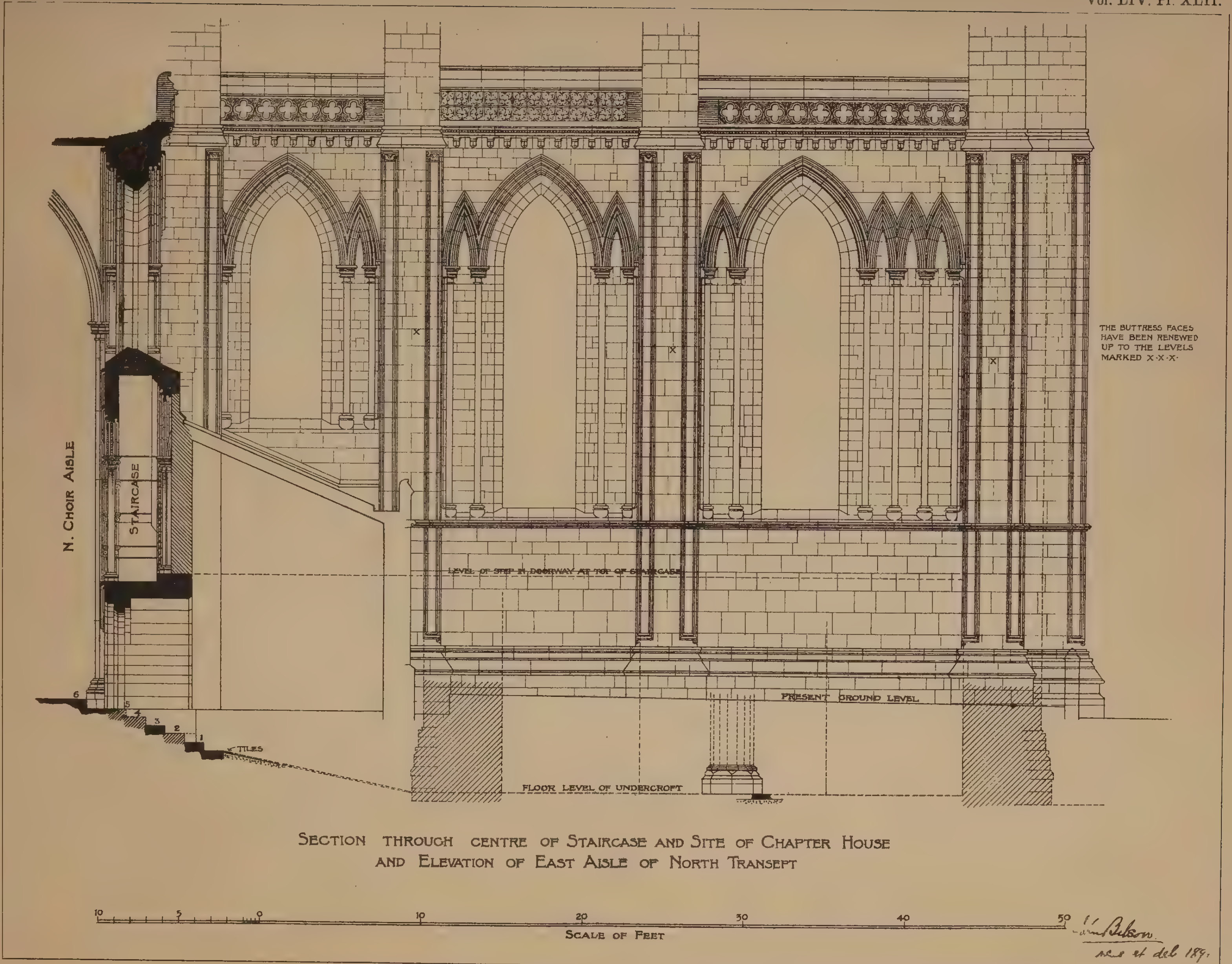
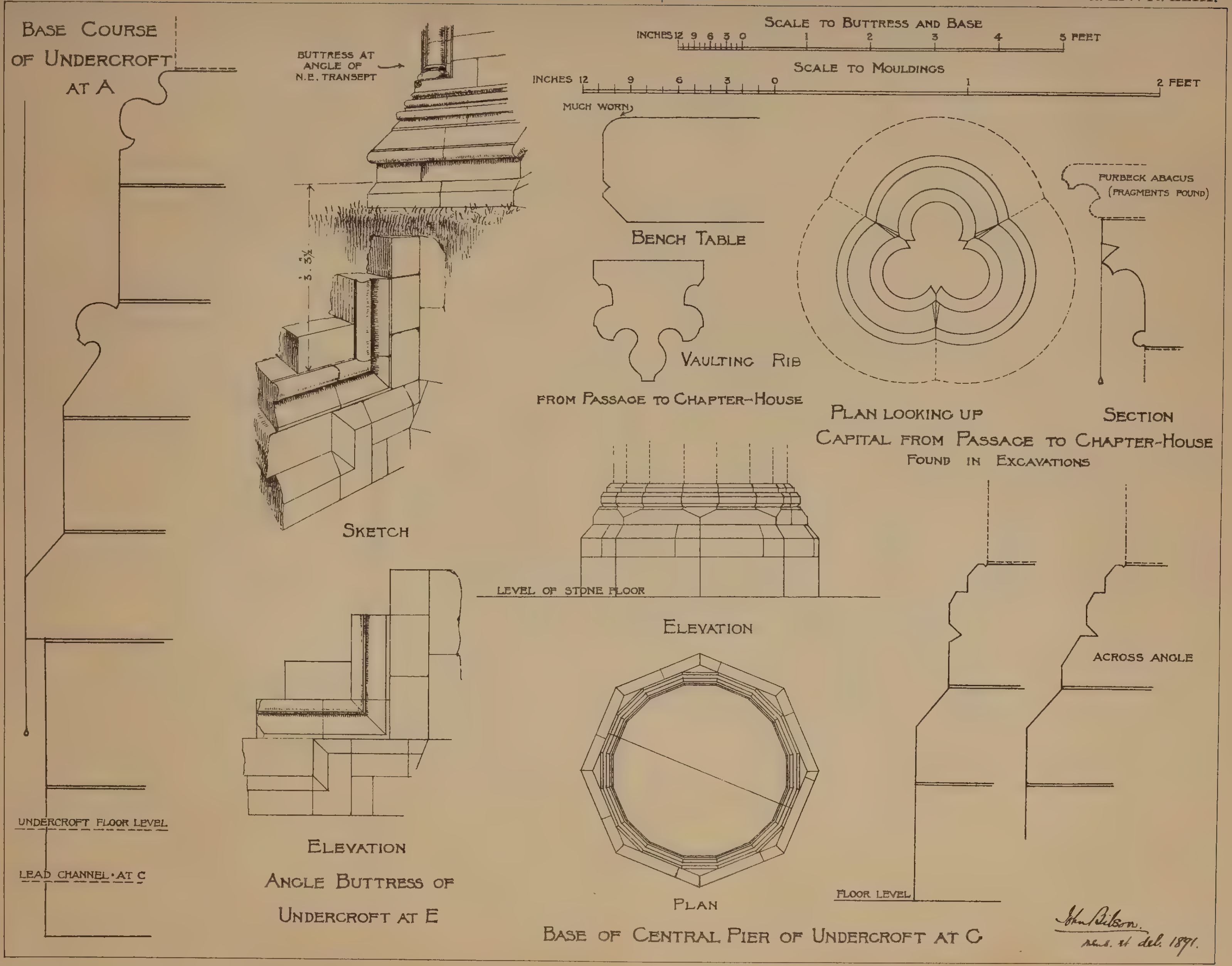
[a] The polygons of the chapter-houses of Lincoln, Westminster, Salisbury, and York seem to have been inscribed in circles of 60 feet diameter, measured in the clear of the vaulting shafts. (Sir G. G. Scott's *Gleanings from Westminster Abbey*, 2nd ed., p. 39.)



BEVERLEY MINSTER.—PLAN OF REMAINS OF CHAPTER-HOUSE.


THE BUTTRESS FACES HAVE BEEN RENEWED UP TO THE LEVELS MARKED X·X·X·
X
X
X
N. CHOIR AISLE
STAIRCASE
LEVEL OF STEP IN DOORWAY AT TOP OF STAIRCASE
PRESENT GROUND LEVEL
6
5
4
3
2
1
TILES
FLOOR LEVEL OF UNDERCROFT
SECTION THROUGH CENTRE OF STAIRCASE AND SITE OF CHAPTER HOUSE AND ELEVATION OF EAST AISLE OF NORTH TRANSEPT
10
5
0
10
20
30
40
50
SCALE OF FEET
Bilson
mens et del 189

BEVERLEY MINSTER.—SECTION OF SITE OF CHAPTER-HOUSE.


BASE COURSE OF UNDERCROFT AT A
UNDERCROFT FLOOR LEVEL
LEAD CHANNEL · AT C
BUTTRESS AT ANGLE OF N.E. TRANSEPT
3' 3½"
SKETCH
ELEVATION
ANGLE BUTTRESS OF UNDERCROFT AT E
SCALE TO BUTTRESS AND BASE
INCHES 12 9 6 3 0 1 2 3 4 5 FEET
SCALE TO MOULDINGS
INCHES 12 9 6 3 0 1 2 FEET
MUCH WORN
BENCH TABLE
VAULTING RIB
FROM PASSAGE TO CHAPTER-HOUSE
PURBECK ABACUS (FRAGMENTS FOUND)
PLAN LOOKING UP
SECTION
CAPITAL FROM PASSAGE TO CHAPTER-HOUSE FOUND IN EXCAVATIONS
LEVEL OF STONE FLOOR
ELEVATION
PLAN
BASE OF CENTRAL PIER OF UNDERCROFT AT C
ACROSS ANGLE
FLOOR LEVEL
John Bilson. mens. et del. 1891.

BEVERLEY MINSTER.—DETAILS OF CHAPTER-HOUSE UNDERCROFT.

croft appears to be too small to support an upper pier, and the moderate width to be vaulted would be well within the power of the builders, being, in fact, only little more than the width of the choir itself. The undercroft was, no doubt, the sacristy (I am indebted to Mr. Micklethwaite for the suggestion), and its position would be very convenient for such a purpose. The whole structure was contemporary with and formed part of the design of the eastern arm of the church, with which it was connected. Its date may be stated approximately as 1230.

One of the most remarkable points about its plan is the curious way in which it is squeezed in between the two transepts. The western face of the octagon is very close to the east wall of the north transept aisle, and one of the angle buttresses abuts on the buttresses at the angle of the north-east transept.

The difference in level between the plinth of the undercroft and the plinths of the church generally is another remarkable feature. There can be no doubt, however, that the ground on the north side of the church was formerly at a considerably lower level than at present, and this may conceivably have suggested the idea of an undercroft. Excavations in Highgate (the street running northward from the north porch) have proved that its present level is some 7 feet above that of the natural surface. The floor of the undercroft would thus be about 5 feet above the original ground level at the south end of Highgate. High ground would doubtless be chosen for the site of the church, and its floor level thus raised above its marshy surroundings.

The sale of the chapter-house, after the suppression of the collegiate church, is recorded in a document filed among the Chantry Certificates at the Public Record Office.[a] Its destruction was so complete that probably little more now exists beneath the surface than the few fragments recently uncovered. The base-course on the east side of the north transept is post-reformation work, though part of the thirteenth-century base-course still remains at the back of the staircase. The masonry of the lower part of the walls and the faces of the transept buttresses have been so extensively renewed as to remove whatever indications there may have been of the abutting buttresses of the chapter-house.

In order to show clearly the relation of the plan and arrangement of the chapter-house of Beverley Minster to other similar examples, I have prepared a table of the circular and polygonal chapter-houses in Great Britain,[b] arranged in approximate chronological order. It may, perhaps, be interesting to trace briefly the history of this class of structures, with regard to the form of the chapter-house itself, and its arrangement in relation to the plan of the church. It will be unnecessary for my present purpose to deal with the earlier, and much more common, rectangular form, which was uniformly adopted in France, where the polygonal form never appears, or with such variations of the rectangular plan as are to be found in chapter-houses with apsidal eastern terminations, as, for example, those at Durham, Reading, and Norwich.

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[a] I am indebted to Mr. Wm. Page, F.S.A., for the knowledge of this document, which will be printed in his forthcoming volume of Yorkshire Chantry Certificates for the Surtees Society.

[b] The table will be found at the end of this paper. I have to acknowledge the great assistance kindly given me, in its compilation, by the Rev. Precentor Venables, Mr. W. H. St. John Hope, Mr. C. C. Hodges, and others.

First, then, as to the form of the structure itself. The earliest mention of a chapter-house of circular plan is to be found in a description, written in the time of Henry the Third, of the Confessor's church of Westminster, in which we are told that he built there a cloister, a chapter-house in front, towards the east, vaulted and round.[a] The circular form had long been used for other buildings, and its obvious suitability for assemblies of a capitular body is quite sufficient to account for its adoption. It is worthy of remark, however, that the circular and polygonal form, which in later times was so commonly preferred for chapter-houses attached to churches of secular canons, appears first in monastic plans. The chapter-house of Worcester, which dates from the early part of the twelfth century, is the earliest existing example of the circular form. It was originally circular both externally and internally, but about the year 1400 its external appearance was altered to a decagon. It is covered with a Norman ribbed vault, springing from a central pillar. It appears to have furnished the inspiration for the plan of the chapter-house of Margam, which is circular internally and a duodecagon externally, and that of Abbey Dore, which is a duodecagon both externally and internally. These examples illustrate the transition from the earlier, circular, to the later, polygonal, form. Alnwick is a curious combination of the circular and rectangular plan of late twelfth-century date. Lincoln is the earliest example of the decagon, which was adopted also at Evesham, Bridlington, and Hereford. Beverley seems to be the earliest known example of the more common octagonal form, which was adopted in the monastic chapter-houses of Westminster, Thornton, Cockersand, Carlisle, and Bolton, and in chapter-houses attached to churches of secular canons at Lichfield (an elongated octagon), Salisbury, Wells, Elgin, Southwell, York, Old St. Paul's, Howden, Manchester, and partially at Warwick. Most of the larger chapter-house were vaulted from a central pillar. They form a series of buildings which is as admirable architecturally as it is characteristically English.

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[a] This statement appeared to me to be warranted by the following lines (2308-2311) in *La Estoire de Seint Aedward le Rei* (*Lives of Edward the Confessor*, ed. H. R. Luard, Rolls Series, 1858):

> "Clostre i fait, chapitre a frund,
> Vers Orient vouse e rund,
> U si ordené ministre,
> Teingnent lur secrei chapitre."

It would, however, seem more probable that this Westminster chapter-house was not circular, but had, as Mr. J. T. Micklethwaite suggests, an apsidal eastern termination. See Mr. Micklethwaite's paper, *Archaeological Journal*, li. 9.

With regard to their arrangement in relation to the plan of the church, all the circular and polygonal chapter-houses of monastic houses are placed on the east side of the cloister, and are approached either directly from the east walk of the cloister, as at Worcester and Alnwick, or, as was more generally the case, through an intervening vestibule. The chapter-houses of secular canons exhibit a greater variety of position. In those churches where, in imitation of monastic plan, the somewhat superfluous luxury of a cloister was adopted, *e.g.* at Salisbury and Hereford, the chapter-house occupies the normal monastic position on the east side of the cloister; though at Wells, where a cloister also exists, the chapter-house is placed on the opposite side of the church. At Old St. Paul's the chapter-house was in the centre of the cloister.[a] But in the remaining examples the chapter-house is placed in what we may consider to have been the normal position in churches of secular canons, viz. immediately to the north or south of the choir of the church[b]; on the south side at Howden and Manchester, and on the north side in the seven other examples. The chapter-house was thus much more intimately connected with the church, and formed part of its plan, instead of being the chief of a group of buildings around the cloister, as in monastic plans. The contemporary chapter-houses of Lincoln and Beverley are the earliest instances of the adoption of this position. That of Lincoln, however, is placed much further to the east than usual, and is approached from the north end of the eastern transept, the cloister here being an addition of later times. On the other hand, the position of the chapter-house of Beverley, immediately to the north of the choir aisle, and its approach therefrom through a vestibule, seems to represent the more general type followed in churches of secular canons. Lichfield and Southwell show a similar arrangement, the vestibule leading from the choir aisle to an entrance in the western face of the octagon. I may note, in passing, that one of the angle-buttresses of the chapter-house of Southwell abuts against the north-west angle of the eastern transept, much in the same way as at Beverley. The chapter-houses of Wells and York occupy somewhat similar positions, but are approached from the north transept; though the undercroft at Wells is approached from the north choir aisle, as at Beverley. At Elgin, Howden, and Manchester the chapter-houses are approached more directly from the choir aisle. Besides Beverley, three only of these polygonal chapter-houses had undercrofts, viz. Westminster, Old St. Paul's, and Wells. At Westminster the undercroft was built for the Treasury of the King's Wardrobe. At Old St. Paul's the undercroft seems to have been adopted in order that the chapter-house might be approached from the *upper* storey of the cloister. Wells presents the only real parallel to Beverley in this respect, the undercroft in each case serving as the sacristy. At Wells, however, the floor of the undercroft is nearly at the same level as the floor of the church, while that at Beverley is more than five feet below. The Wells chapter-house was an afterthought, and is approached by a staircase from the eastern aisle of the north transept, which can scarcely have been so convenient an arrangement as the direct approach from the choir aisle at Beverley. The approach to the Beverley chapter-house is, in fact, as unique in arrangement as it is beautiful in effect. Viollet-le-Duc[a] illustrates a double sacristy of the end of the twelfth century, which formerly existed at the cathedral church of Notre-Dame, Paris. Both storeys were approached by stairs from the south choir aisle, the lower sacristy by six descending steps, the floor of the upper sacristy by a longer staircase rising to a height of some 14 feet above the aisle floor. Is it possible that the designer of the work at Beverley may have borrowed his inspiration from this distant source?

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[a] The chapter-house of Belvoir (Benedictine) is said to have occupied a similar position.

[b] In some churches of secular canons, such as Exeter and the Welsh cathedrals, the rectangular form of chapter-house was retained.

The plan of the chapter-house of Beverley Minster, as developed from the remains I have described, is therefore interesting as an early example of the polygonal form, and, in fact, the earliest known instance of the octagonal plan; as one of the earliest chapter-houses of a type of arrangement which was afterwards generally followed in churches of secular canons; as a parallel example to the sacristy undercroft of Wells; as possessing a beautiful and unusual method of approach from the church; and, above all, in the fact that it was contemporary with, and formed a consistent and integral part of, the design of the eastern arm of the church itself.

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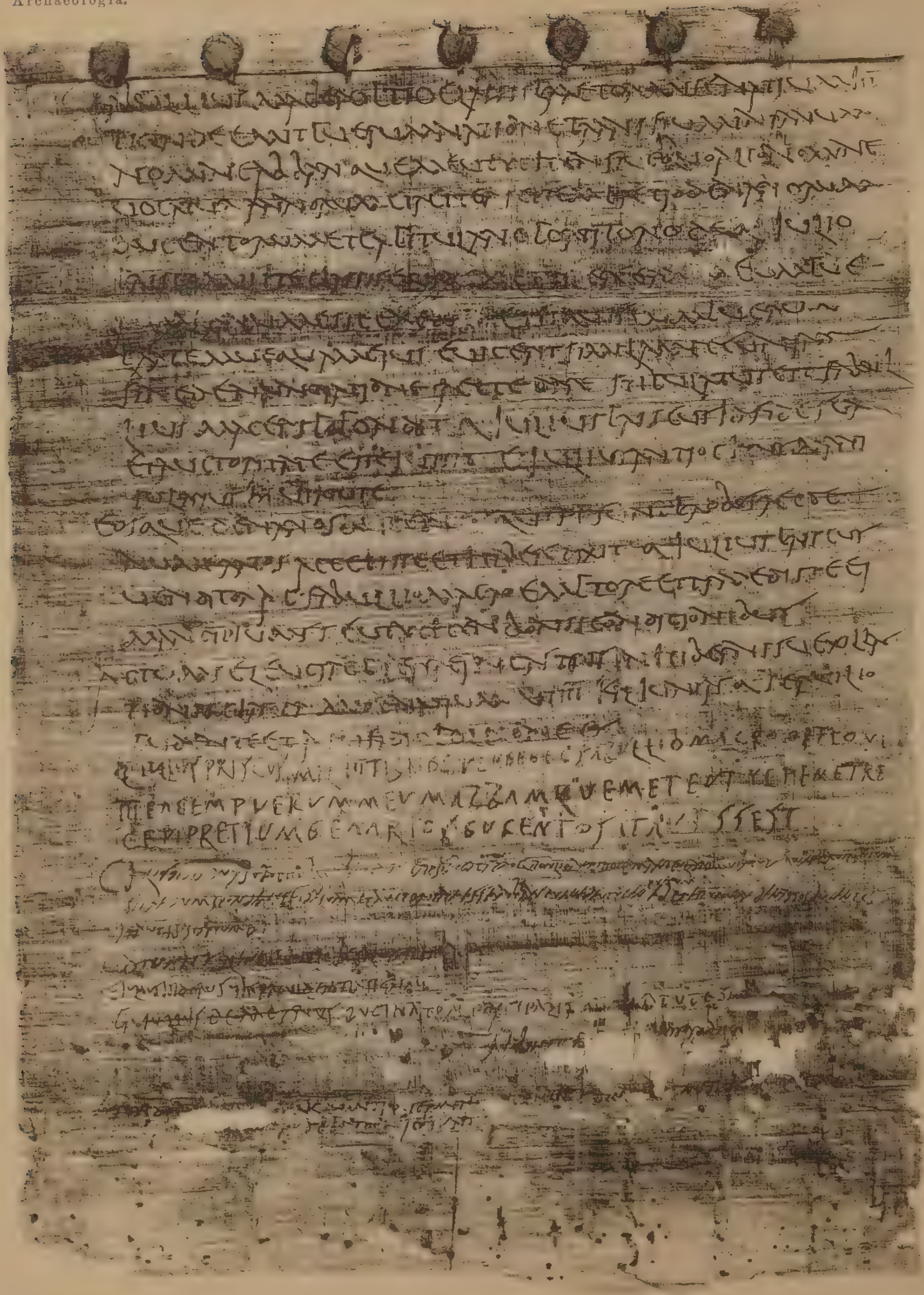
[a] *Dictionnaire Raisonné de l'Architecture Française du XI^e au XVI^e Siècle*, viii. 70 (Art. Sacristie).

CIRCULAR AND POLYGONAL CHAPTER-HOUSES IN GREAT BRITAIN.

Locality.	Order, &c.	Position.	Approach.	Form.	Internal Diameter.	Date.	Condition.	Reference to Plan.	Remarks.
Worcester	Benedictine	East side of cloister on south side of church	Direct from east walk of cloister	Circular (ten compartments)	56′ 0″	Norman, c. 1120; altered, c. 1400	Complete	*Archæological Journal*, xx. 317; *Transactions, R.I.B.A.*, 1862-3 (Willis); *Builder*, August 6, 1892	Vaulted in stone with central pillar.
Alnwick	Præmonstratensian Canons	East side of cloister on south side of church	Direct from east walk of cloister	Circular eastern portion, with rectangular western portion or vestibule	26′ 10″ Rectangular portion 30′ 6″ × 21′ 7″	? Transitional	Destroyed	*Archæological Journal*, xliv. 337 (W. H. St. John Hope)	
Margam	Cistercian	East side of cloister on south side of church	From east walk of cloister through a vestibule	Circular (twelve bays) internally; duodecagon externally	49′ 0″	Transitional, c. 1190	In ruins	*Builder*, April 8, 1893 (Roland W. Paul)	Vaulted in stone with central pillar.
Abbey Dore	Cistercian	East side of cloister on north side of church	From east walk of cloister through a vestibule	Duodecagon	43′ 0″	Lancet, c. 1220	Destroyed	*Builder*, April 8, 1893 (Roland W. Paul)	Vaulted in stone with central pillar.
Lincoln	Secular Canons	East side of (later) cloister on north side of choir	From north end of north-east transept by a passage (east walk of cloister) and through a vestibule to doorway in west face of decagon	Decagon	59′ 0″	Lancet, c. 1220-1230	Complete	*Archæological Journal*, xl. 192; *Architectural Association Sketch Book*, vol. xi. O.S.; *Builder*, November 7, 1891	Vaulted in stone with central pillar.
Beverley	Secular Canons	North side of choir between north transept and north-east transept	From north choir aisle by staircase and vestibule. Undercroft by steps from north choir aisle	Octagon	About 31′ 0″	Lancet, c. 1230	Destroyed	*Archæologia*, liv. pls. xl.-xliii.	Undercroft had central pillar.
Lichfield	Secular Canons	North side of choir	By a passage from north choir aisle to a doorway in west face of octagon	Elongated octagon (north and south sides of two bays)	40′ 0″ × 26′ 0″	Lancet, c. 1240	Complete	*Builder*, February 7, 1891	Vaulted in stone with central pillar. Of two storeys. Upper now used as a library.
Westminster	Benedictine	East side of cloister on south side of church	From east walk of cloister, through a vestibule, with steps up to chapter-house floor	Octagon	58′ 0″	Geometrical, c. 1250	Complete	Scott's *Gleanings from Westminster Abbey*; *Archæological Journal*, xxxiii. and li.	Vaulted in stone with central pillar. Undercroft.
Salisbury	Secular Canons	East side of cloister on south side of church	From east walk of cloister through a vestibule	Octagon	58′ 0″	Geometrical, c. 1260	Complete	*Builder*, July 4, 1891	Vaulted in stone with central pillar.
Wells	Secular Canons	North side of choir	By staircase from north end of east aisle of north transept, to doorway in west face of octagon. Undercroft by passage from north choir aisle, to doorway in south-west face	Octagon	53′ 6″	Geometrical: Undercroft, c. 1270; Chapter-house, c. 1298	Complete	*Builder*, May 2, 1891; *Architectural Association Sketch Book*, vol. ix. N.S.	Vaulted in stone with central pillar. Undercroft nearly level with floor of church.
Elgin	Secular Canons	North side of choir	From north choir aisle through a vestibule	Octagon	33′ 0″	Originally, c. 1270; nearly rebuilt, 1462	Complete	*Builder*, March 3, 1894	Vaulted in stone with central pillar.
Thornton	Augustinian Canons	East side of cloister on south side of church	From east walk of cloister through a vestibule	Octagon	42′ 9″	Geometrical, c. 1282	In ruins	*Associated Architectural Societies' Reports*, 1852	Vaulted in stone. Probably had central pillar.
Southwell	Secular Canons	North side of choir	From north choir aisle by a passage to doorway in west face of octagon	Octagon	31′ 4″	Geometrical, c. 1280	Complete	*Builder*, July 2, 1892 (Mr. Ewan Christian's plan)	Vaulted in stone. No central pillar.
Cockersand	Præmonstratensian Canons	East side of cloister on south side of church	From east walk of cloister through a vestibule	Octagon	27′ 6″	Geometrical, c. 1290	Complete	*Transactions of the Lancashire and Cheshire Antiquarian Society*, iv. 26	Vaulted in stone with central pillar.
York	Secular Canons	North side of choir	From north end of east aisle of north transept, by a passage turning to doorway in west face of octagon	Octagon	58′ 0″	Geometrical, c. 1300	Complete	*Builder*, January 7, 1893	Vaulted in wood, No central pillar.
Evesham	Benedictine	East side of cloister on south side of church	From east walk of cloister through a vestibule	Decagon	51′ 6″	Geometrical, c. 1282-1317	Destroyed	*Vetusta Monumenta*, vol. v. pl. lxvii.	Vaulted in stone.
Carlisle	Augustinian Canons	East side of cloister on south side of church	From east walk of cloister through a vestibule	Octagon	30′ 0″	Geometrical	Destroyed	Mr. C. J. Férguson's plan	
Bridlington	Augustinian Canons	East side of cloister on south side of church	From east walk of cloister probably through a vestibule	Decagon	— —	— — —	Destroyed	Described in Suppression Survey as "a very fayre Chapter House w^t ix fayre lyghts aboute the same . . . coveryd w^t lede spere facyon."	
Old St. Paul's	Secular Canons	In centre of cloister on south side of nave	From east walk of cloister by a passage	Octagon	32′ 6″	Curvilinear, c. 1332	Destroyed	Longman's *Three Cathedrals of St. Paul*	Had an undercroft.
Hereford	Secular Canons	East side of cloister on south side of church	From east walk of cloister through a vestibule	Decagon	41′ 0″	Curvilinear	Destroyed	*Builder*, February 6, 1892	Vaulted in stone with central pillar.
Bolton	Augustinian Canons	East side of cloister on south side of church	From east walk of cloister by a passage	Octagon	30′ 0″	? Curvilinear	Destroyed	*Yorkshire Archæological and Topographical Association*, Excursion Programme, 1877	
Howden	Secular Canons	South side of choir	From south choir aisle through a vestibule	Octagon	26′ 0″	Perpendicular, c. 1390	In ruins	*Yorkshire Archæological and Topographical Association*, Excursion Programme, 1885	Vaulted in stone. No central pillar.
Manchester	Secular Canons	South side of choir	From south choir aisle	Octagon	18′ 4″	Perpendicular	Complete	*Builder*, April 1, 1893; J. S. Crowther's *Cathedral Church of Manchester*, 1893	Vaulted in wood. No central pillar.
Warwick	Secular Canons	North side of choir	From north choir aisle	Semi-octagonal north end; square south end	18′ 0″ × 16′ 6″	Perpendicular	Complete	*Churches of Warwickshire*	Has an undercroft.
Belvoir	Benedictine	In centre of cloister on north side of church	From south walk of cloister	Octagon	— —	— — —	Destroyed	Nichols' *History of Leicestershire*, vol. ii. part i. p. 79	A rather doubtful case.



LATIN DEED OF SALE OF A SLAVE, A.D. 166.

XXIII.—*On a Latin Deed of Sale of a Slave; 24th May,* A.D. 166. *By* EDWARD MAUNDE THOMPSON, *Esq., C.B., D.C.L., LL.D., F.S.A.*

Read June 21st, 1894.

IN the year 1893 the British Museum acquired a remarkable Latin deed on papyrus, which, it is believed, was found a short time before in the Fayyum of Egypt. (Plate XLIV.) As in many particulars it is of unusual interest, I submit the following description to the Fellows of the Society.

The document is now deposited in the Department of Manuscripts, and bears the reference-number Papyrus CCXXIX. It is a deed of sale whereby Caius Fabullius Macer, *optio* of the trireme "Tigris," of the fleet of Misenum, purchases a boy named Abbas or Eutyches, one of the "Transfluminiani," about seven years of age, from Quintus Julius Priscus, a soldier on the same ship, for two hundred denarii and the amount of import dues (*capitulario portitorio*); the vendor warranting the boy sound, in accordance with the requirements of the edict of the Curule Ædile (*ex edicto*); and the purchaser stipulating for the repayment of the purchase-money (*simplam pecuniam*) in the event of a successful counterclaim, without notice of action (*sine denunciatione*) being required. Caius Julius Antiochus, a *manipularius* of the trireme "Virtus," stands surety (*fidejussor*); and the vendor acknowledges the receipt of the purchase-money and declares that he has handed over the boy according to terms. The deed is dated at Seleucia Pieria, a town lying on the Syrian coast just north of the mouth of the Orontes, in the winter quarters of the squadron of the Misenatian fleet there stationed, on the 9th kalends of June, in the consulship of Q. Servilius Pudens and A. Fufidius Pollio,=24th May, A.D. 166.

There are five subscriptions to the deed. First, Q. Julius Priscus, the vendor, acknowledges the sale and receipt of the purchase-money. Next, a *suboptio* of the trireme "Liber Pater," whose cognomen is unfortunately mutilated by the decay of the papyrus, but whose full name may have been C. Julius Titianus (if we are right in our reading of the remains of the letters) subscribes on behalf of the surety (*fidejussor*), C. Julius Antiochus, who was ignorant of letters (*negavit se literas scire*). Then follow the signatures of three witnesses, viz. C. Arruntius Valens, *suboptio* of the trireme "Salus"; C. Julius Isidorus, centurion of the trireme "Providentia"; and C. Julius Demetrius, chief trumpeter of the trireme "Virtus."

At the foot of the deed and following the subscriptions is half a line of writing which is unfortunately so much mutilated by decay as to be illegible. It appears to have been in Greek, and was probably an official memorandum. Below this is the official note of the sale, in Greek, by an officer calling himself μισθωτής.

At the head of the deed the papyrus is unevenly folded down twice to a breadth of from half to three-quarters of an inch, and on this fold are seven clay seals, viz. those of the purchaser, vendor, surety, surety's amanuensis, and three witnesses, presumably placed in order. The impressions on them are: (1) a Victory, (2) a tree or shrub (?), (3) defaced, (4) a draped figure holding in the right hand an object which cannot be identified, (5) a lioness with inscription . . . ALA (?), (6) a capricorn, and (7) a Victory holding a wreath.

The following is a transcript of the deed:

(1) C*aius* Fabullius Macer, optio classis praetor*iae* Misenatium, *triere* (2) Tigride, emit puerum, natione Transfluminianum, (3) nomine Abban quem Eutychen sive quo alio nomine (4) vocatur, annorum circiter septem, pretio denariorum (5) ducentorum et capitulario portitorio, de Q*uinto* Iulio (6) Prisco, milite classis eiusdem et triere eadem; eum pue-(7)rum sanum esse ex edicto, et, si quis eum puerum (8) partemve quam eius evicerit, simplam pecuniam (9) sine denuntiatione recte dare stipulatus est Fabul-(10)lius Macer; spopondit Q*uintus* Iulius Priscus; id fide sua (11) et auctoritate esse iussit C*aius* Iulius Antiochus, mani-(12)pularius *triere* Virtute.

(13) Eosque denarios ducentos, qui s*upra* s*cripti* sunt, probos, recte (14) numeratos, accepisse et habere dixit Q*uintus* Iulius Priscus, (15) venditor, a C*aio* Fabullio Macro, emptore; et tradedisse ei (16) mancipium s*upra* s*criptum* Eutychen bonis condicionibus.

(17) Actum Seleuciae Pieriae, in castris in hibernis vexilla-(18)tionis class*is* pr*aetoriae* Misenatium, viiii kal*endas* Iunias, Q*uinto* Servilio (19) Pudente et A*ulo* Fufidio Pollione co*nsulibus*.

(20) *Quintus* Iulius Priscus, mil*es triere* Tigride, vendedi *Caio* Fabullio Macro, optioni (21) *triere* eadem, puerum meum Abbam quem et Eutychen, et re-(22)cepi pretium denarios ducentos, ita ut *supra scriptum* est.

(23) *Caius* Iulius Titianus (?), suboptio *triere* Libero Patre, et ipse rogatus, pro Gaio Iulio Antihoco, manipulario *triere* Virtute, qui negavit se literas (24) scire, eum spondere, et fide suam et auctoritate esse Abban cuen ed Eutychen puerum, ed pretium eius denarios ducentos, (25) ita ut s. *supra* scr[i]ptum est.

(26) *Caius* Arruntius Valens, suboptio *triere* Salute, signavi.

(27) *Gaius* Iulius Isidorus, *centurio triere* Providentia, signavi.

(28) *Gaius* Iulius Demetrius, bucinator pri[n]cipalis *triere* Virtute, signavi.

(29) . . . .

(30) *Ετους δ̅ο̅ς̅ α[ρτεμισ]ιου δ̅κ̅ Δομετιος Γερμανο[ς μ]ισθωτης κυιντα[νο]ς Μεισηνατων εκ . . . . κα* (31) *τη πρα[σει του παιδ]ειου Αββα του και Ευτυχου.*

The transaction, then, as we have seen, takes place between two officers of the squadron of the fleet of Misenum stationed at Seleucia Pieria on the Syrian coast. It will be remembered that under Augustus a Mediterranean fleet was organized, having its two chief stations at Misenum on the Tyrrhenian Sea and at Ravenna on the Adriatic; and the two divisions bore respectively the titles of "Classis praetoria Misenensis (*or* Misenatium)," and "Classis praetoria Ravennas (*or* Ravennatium)." Being immediately under the command of the emperor, they, like the *cohortes praetoriae*, were also ranked as *praetoriae*. Other divisions of the Roman fleet were afterwards organized, as the Classis Forojuliensis, the Classis Venetum, the Classis Britannica, the Classis Pontica, and others, among which was the Classis Syriaca, afterwards called the Classis Seleucena.[a] The squadron, however, of the document before us is not to be confounded with this Classis Seleucena, which was under the command of the legatus of the province. It is a squadron of the fleet of Italy; and my friend Professor Mommsen (to whom I am indebted for much information in connection with this document) tells me that it is new and curious to find in the province a detachment of the imperial fleet which was not under the orders of the governor.

The ships of the squadron which are named in the deed are the "Tigris," the "Virtus," the "Liber Pater," the "Salus," and the "Providentia." Inscriptions referring to the Classis Misenensis are collected in vol. x. of the *Corpus Inscriptionum Latinarum*: and there the "Tigris" appears in Nos. 3400*a*, 3443,

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[a] Marquardt, *Röm. Statsverwaltung*, ii. 485.

8210; the "Virtus" in No. 8208 (a trireme of the same name appearing also in the Ravenna fleet, No. 3645); the "Liber Pater" in Nos. 3535, 3540, 3563, 3579, 3595; the "Salus" in Nos. 3402, 3639, 8119; and the "Providentia" in No. 3636. The word *triremis*, it will be observed, is expressed in the deed by its symbol I$\overline{\text{II}}$ or $\overline{\text{III}}$; and *centurio* by ⅂.

Of the seven persons named, we have an *optio* and a *miles* of the "Tigris," a *manipularius* and the *bucinator principalis* of the "Virtus," a *suboptio* of the "Liber Pater," a *suboptio* of the "Salus," and a *centurio* of the "Providentia."

The *optio* orginally was an officer *chosen* by the decurion or centurion as his assistant or adjutant in private matters. Smith[a] quotes Mommsen's opinion that there were two classes of *optiones*, one belonging to the centuries and superior in rank, the other in a manner supernumerary and outside the centuries and taking charge of particular departments, as the *navalia*, *carcer*, etc. *Optiones* of various triremes of the fleet of Misenum occur in the inscriptions.[b] Among them is an *optio* of the "Tigris," not our purchaser, but one M. Naerius Quadratus (No. 3400*a*). It may be noticed that the formula used is indifferently *optio triere* or *optio ex triere*. The *suboptio*, as the word implies, would be an officer subordinate to the *optio*. The title appears twice in the inscriptions.[c] *Miles* is a vague term which we find used by itself or with some explanatory title; but Mommsen observes[d] that it is rarely found in connection with *principalis*, and never with *optio* or *centurio*. The *bucinator principalis* occurs now for the first time; unless the title "Bix. Pri.," which occurs in *C. I. L.* x. 3502, and which has been interpreted as *bixillarius principalis*, be another instance.

Only one of the names of the persons of our deed is found in the inscriptions connected with the Classis Misenensis, that of C. Arruntius Valens, who appears in two instances, Nos. 3464*a* and 3469, as *optio* of the liburnian "Nereis."

The child who is sold bears the native name of Abbas, with the alternative name of Eutyches, given to him no doubt by his captors: "quem Eutychen" in l. 3 should be "quem et Eutychen," as in l. 21, and in accordance with the formula common in Greek papyri, or "qui et Eutyches [vocatur]."[e] In conformity with the law,[f] his nationality is declared: "Transfluminianus," a term which is not found elsewhere. The river from beyond which the Arab boy had been brought would not be the Orontes, the river nearest to Seleucia Pieria and within the Roman province of Syria, but rather the great river, the Euphrates, which formed the eastern boundary.[a] Reckoning the legal value of the denarius at 9*d.*, the price of the boy would represent £7 10*s.* of English money; and the import dues might amount to a denarius and a half, if we may take as a standard a tariff of A.D. 202, found at Zarai, in Numidia, in which, under the head of *lex capitularis*, is the entry "mancipia singula denario uno semisse."[b]

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[a] *Dictionary of Greek and Roman Antiquities* (3rd ed. 1890), i. 801.

[b] *C. I. L.*, x. 3400—3479 *passim*, etc.

[c] *C. I. L.*, x. 3496, 3497.

[d] *C. I. L.*, x., Index, Officia Classiaria, p. 1131.

[e] Cf. *C. I. L.*, x., Index, Notabilia, p. 1187, secundum nomen.

[f] Dig. xxi. 1, 31, § 21. "Qui mancipia vendunt nationem cujusque in venditione pronuntiare debent."

The edict of the Curule Ædile imposed upon the vendor the obligation of declaring any faults of which he might be cognizant in the slave whom he was selling, and of warranting the absence of certain faults, with or without stipulation on the part of the purchaser. If the slave turned out to be deficient in the warranted qualities or to have undeclared faults, the purchaser could bring under the civil law an action against the vendor called *duplae actio*, if, as was usually the practice, he had stipulated to recover double the purchase money, or an action *ex emto* for loss incurred. Or again, under the edict of the Ædile, he had the choice of two actions, the *actio redhibitoria* to cancel the sale and make good all losses, or the *actio quanti minoris* to recover part of the price.[c] In the present case the purchaser stipulates for the recovery of the amount of the purchase money (*simplam pecuniam*) only; not for double the sum, the usual penalty of the *stipulatio de evictione*. And he is to be exempt from giving the usual notice to the vendor of the claim of a third party: "denuntiare de (or pro) evictione."[d]

A *vexillatio classis praetoriae*, here named in the date-clause, appears to be mentioned in only one other instance, in an inscription: Orelli, *Inscriptionum Latinarum selectarum collectio*, ed. Henzen, iii. No. 6923.

With respect to the consuls named in this document, the praenomen of Fufidius Pollio is given elsewhere not as A[ulus], but as L[ucius]: *C. I. L.* vi.

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[a] Cf. an inscription referring to *χώραι [Σ]ομελοκεννησίας καὶ [ὑπ]ερλιμιτάνης*, tractus Sumelocennensis (*i.e.* Rottenburg) et tractus superlimitanus, of the imperial period, given in *Westdeutsche Zeitschrift*, bd. v. (1886), korresp.-bl. 260.

[b] *See* Héron de Villefosse, *Rapport sur une Mission archéologique en Algérie*, in the *Archives des Missions scientifiques et littéraires*, 3rd series, tom. ii. (1875), 424; also *Soc. Française de Numismatique et d'Archéologie, Comptes rendus*, tom. vi. (1875), 184; and *C. I. L.* viii. 4508.

[c] Dig. xxi. 1, 1. Hunter, *Roman Law* (1885), 499; Rein, *Privatrecht der Römer* (1858), 710.

[d] Rein, *op. cit.*, p. 705. Cf. Dig. xxi. 1, 48; Rein, *op. cit.*, p. 706; Dig. xxi. 2, 49.

Nos. 165, 360; xiv. No. 4148; but Professor Mommsen tells me that the reading is not quite certain in the first two inscriptions.

It is unfortunate that the official memorandum of the *μισθωτής* at the foot of the document is in so imperfect a state. No part of it can be restored with certainty except the date, which is also given in the body of the deed; although I have had the benefit of my colleague Mr. F. G. Kenyon's skill in its attempted decipherment. The numerals $\delta\overline{o\varsigma}$ are to be read in reverse order, and indicate the year 274 of the era of the town of Seleucia, which was reckoned from B.C. 108.[a] This gives us A.D. 166. The name of the month is easily supplied, as the 24th of Artemisius, according to the Syrian reckoning, corresponds as it seems with the ixth kalends of June or 24th of May.[b] The system of arranging dates in reverse order appears to be Syrian; but there are one or two instances of the practice among the Greek papyri from the Serapeum of Memphis. The name of the *μισθωτής* is clearly Domitius Germanus; but what the title *μισθωτης κυιντανος* (if our reading be correct) may mean, we have no means of deciding. The Latin equivalent may be *conductor quintanus*, and the official may have been the farmer of the duties levied on sales of this nature.[c]

A few words may be added regarding the handwriting of the deed and of its subscriptions. The forms of letters of the deed are those which we meet with in the *graffiti* or wall-inscriptions and in the waxen-tablets of Pompeii, and in the Dacian waxen-tablets of the second century; and they are written in a broad style and with great freedom. The more cursive forms, however, of the letters E (II), M (IIII), and N (III), which occur among the above-mentioned inscriptions, are not used in this document. The vendor's subscription is the painful performance of a very unready writer, and is made up of a series of capital and cursive letters. Next follows the attestation of the *suboptio*, who writes in the name of the illiterate surety in a cramped running hand, and employs certain forms of spelling, *cuen* for *quem*, and *ed* for *et*, which may indicate provincial pronunciation. The subscriptions of the three witnesses, which are fairly well written, do not call for remark, except the first, in which it will be seen that the letters VAL of the name Valens are written in a monogram, the V joining the L and incorporating the A below it.

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[a] *See* Eckhel, *Doctrina Numorum Veterum*, iii. 327; Head, *Hist. Numorum*, 661.

[b] *See* Clinton, *Fasti Hellenici*, iii. 357-8, who concludes that at Antioch the month Artemisius coincided with May.

[c] A *μισθωτής* occurs in a document of A.D. 153-4, printed in Bruns, *Fontes Juris Romani Antiqui* (*Leges et Negotia*), 1893, p. 324. Deeds of sale similar in nature to that which forms the subject of this paper will be found in that work, pp. 287, 322, *sqq.*

XXIV.—*Excavations on the site of the Roman city at Silchester, Hants, in* 1894. *By* George E. Fox, *Esq., M.A., F.S.A.; with Appendices on:* (1) *a hoard of Roman coins found at Silchester, by* H. A. Grueber, *Esq., F.S.A.; and* (2) *hoards of Roman silver coins found in Britain, by* F. Haverfield, *Esq., M.A., F.S.A.*

Read March 21st and March 28th, 1895.

The report which I have the honour to lay before the Society to-night on behalf of the Executive Committee of the Silchester Excavation Fund deals with the excavations carried on during the fifth year of the systematic exploration of the site.

If the past year's work be taken as a whole, it may be said that the discoveries made are of equal if not of greater importance than those of previous seasons, but they have been of a very different character. Although few houses have been found, and portions of the *insulæ* examined contain a large space of vacant ground, the buildings which line the south side of these *insulæ* are of exceptional interest, as they show us, for the first time in our examination of the site, considerable traces of some industry which covered a wide area in this north-western quarter of the town. What this industry was will be discussed later on.

Adopting the principle, whenever possible, of working along the main lines of roadway from the centre of the town to the gates, last year's explorations were planned so as to take in the *insulæ* lying in succession on the main street from *Insula* I. to the west gate. These have been numbered IX., X., and XI., a fourth, directly north of *Insula* X., being numbered XII.

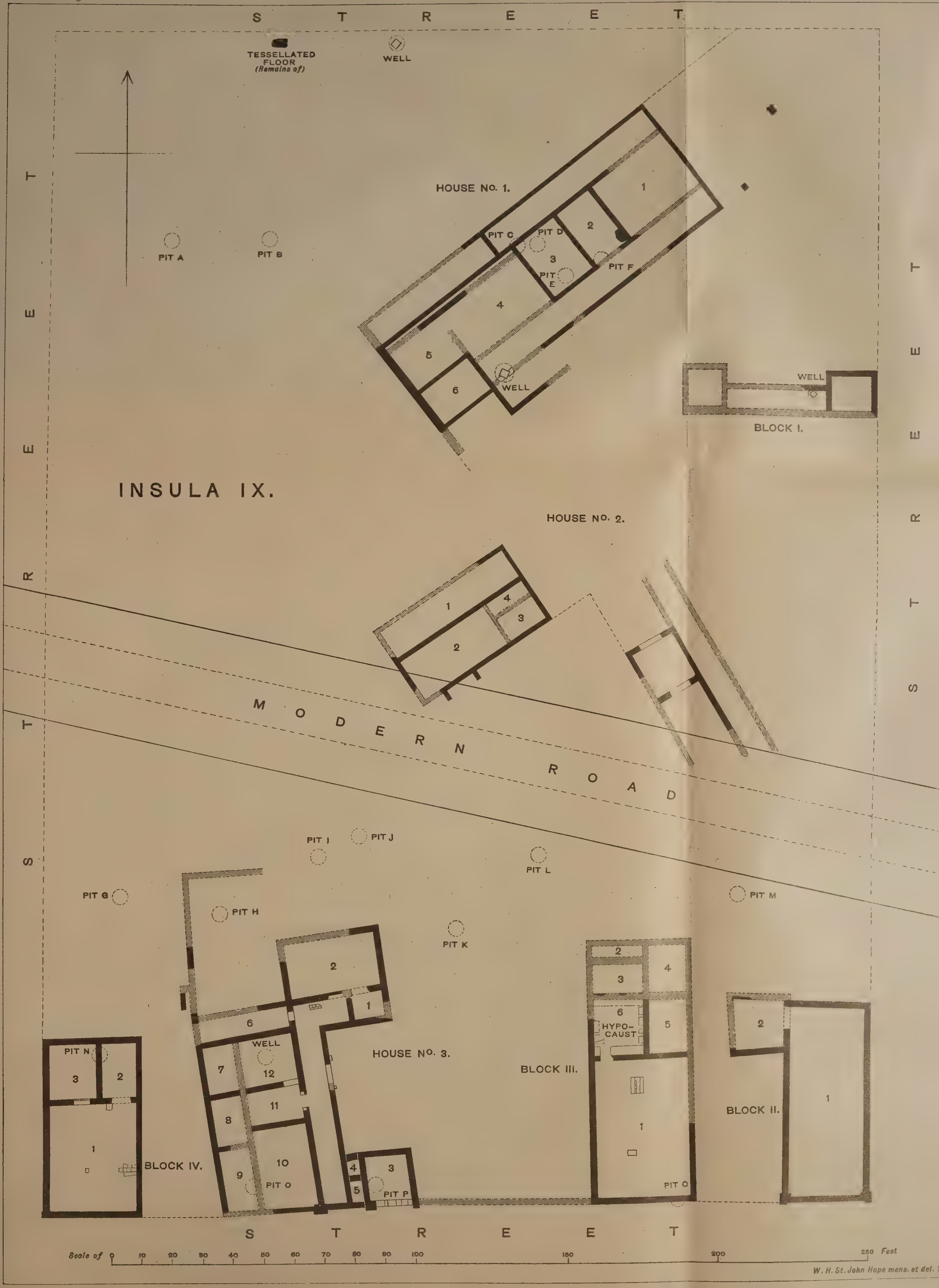
The modern roadway traversing the site from east to west runs diagonally across *Insulæ* IX. and X., making for a break in the city wall, reaching which it turns southward, and continuing parallel to and within the wall, finally quits the town by the west gate.

Taking the *insulæ* in their order from east to west for the purpose of a detailed examination, the first which presents itself is numbered IX. on the plan (Plate XLV.). It is situated at the intersection of the main roads or streets through the city, and forms a parallelogram 386 feet long by 274 feet wide, traversed as before stated by the modern road.

The upper and larger half, to the north of this road, was excavated in 1893, but with the exception of the stone with an Ogam inscription found in a well in House No. 1, of which a description was given in the report for that year, the discoveries made have not as yet been recorded. It was considered better to defer any account of them until the entire *insula* had been examined, and the excavation of what remained, *i.e.* the lower half, was the first work undertaken at the beginning of last season.

The disposition of the houses in this *insula* is singular. Hitherto, with small exceptions, the buildings in the various divisions of the town yet examined have been found to stand with their principal walls either lining the roadways or nearly at right angles to them. Here, all is different. The large House No. 1, near the north-east angle of the *insula*, was not only well within its boundaries but lay at an angle of 51 degrees with the line of the street on the north. House No. 2, south of No. 1, had the same irregularity of position, and House No. 3, at the south-west angle, though following a usual rule in respect to having one end upon a street, showed a marked inclination of its axis to the west.

House No. 1 belonged to the corridor type. It was of considerable size, having a length of 120 feet by a breadth of 44 feet. The central range of chambers had a uniform length of 21 feet 3 inches, with the exception of the last one at the southern end, which was 3 feet 5 inches less. The corridors which lined the range, back and front, were about equally wide, averaging 8 feet 3 inches. The north corridor was divided by a cross wall at 68 feet from the north-east angle of the house, and the south corridor terminated at it south-western end in a chamber, No. 6, having the same breadth as No. 5, the last chamber at this end of the central range. The wall at the west end of this corridor was prolonged for over 10 feet and then returned eastward as if to form a double corridor at this point, but at some 26 feet from the angle all further traces of it were lost. The western end wall of the house was also prolonged in a southerly direction, but could not be traced for any distance. This wall had an exceptional thickness of 2 feet 10 inches, the other walls of the building averaging only 1 foot 6 or 7 inches. It must be remarked that the walls of the



SILCHESTER.—PLAN OF INSULA IX.

central range of chambers and those of the corridors were of equal thickness, an unusual feature, and possibly indicating the absence of an upper story to the house.

Taking the chambers in order, No. 1 showed throughout a flooring of *opus signinum.* Owing to its size it is likely that it was originally divided by one or more partitions. The next chamber, No. 2, had been floored with the usual red *tesseræ.* The next, No. 3, was probably some kind of workshop. Its floor was covered with flint pitching, and two flint-lined shallow pits were sunk in the ground, one at each end of the space. No. 4 was an area of still larger dimensions than No. 1, and like it was in all probability originally divided into smaller compartments by lath and plaster partitions, all traces of which are now lost. No. 5 corresponded in breadth with No. 6, which has been already mentioned. Nearly parallel with the wall bounding Nos. 4 and 5 on the north ran a line of foundation, 1 foot 10 inches thick, separated from it by an interval 10 inches wide. It is possible that this foundation, taken together with rooms 5 and 6, the fragment of a corridor close by, and the thick western end wall of the house showing a prolongation southward, may indicate a later alteration.[a]

At the west end of the southern corridor, and beneath the line of its external wall, was found a shallow well of the usual construction, about 8 feet deep. In it, about 5 or 6 feet from the surface, lay, point downwards, the fragment of the sandstone pillar with the Ogam inscription treated of by Professor Rhys in his remarks appended to our report for 1893. The stone was so fully described in that report[b] that it is needless to do more than refer to it here. Beneath the stone, and completely flattened by it, lay a vessel of peculiar form, of white metal or pewter; but no other objects of interest were brought up, and it was evident that the well was disused and partly filled up when this vessel, and the *stele* which crushed it, had been flung into it. The well could only have been sunk when the portion of the house in which it occurred was in a ruinous condition, and probably somewhat late in the Roman period.

Between the north-east end of House No. 1 and the angle of the *insula*, a few traces of what may have been hypocausts were uncovered; as there was nothing to indicate that they had formed part of the dwelling, little can be said concerning them.

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[a] The dimensions of the chambers of House No. 1 are as follow: 1, 21 feet 3 inches by 28 feet 8 inches; 2, the same by 13 feet; 3, the same by 15 feet 9 inches; 4, the same by 31 feet; 5, 17 feet 10 inches by 19 feet 6 inches; 6, 13 feet by 19 feet 6 inches.

[b] *Archaeologia*, LIV. 233, where an illustration of it is given.

At a level with the lower end of House No. 1, and running into the *insula* at right angles to the main street north and south, was a curious little structure, Block I., consisting of two nearly square chambers joined by a long passage or corridor. The walls of the building were on an average 2 feet thick, the south wall of the western chamber being somewhat thicker, viz. 3 feet. In the corner of the passage, less than 3 feet from the west wall of the eastern chamber, was a small well of the usual timbered construction, and 1 foot 8 inches square. It is not possible at present to conjecture to what uses this singular building could have been put. Possibly further discoveries may throw some light upon the matter.[a]

Immediately south of House No. 1, and partly covered by the modern road, was House No. 2. What remains of it is but a fragment, and there are doubts if the building to the west of it, and nearly at right angles to the line of its chambers, be a part of it. As before mentioned, the house stood at a considerable angle with the side of the *insula,* and well within its eastern boundary. The portion remaining shows it to have been of the same type as House No. 1, but with only a single corridor on the eastern side of its range of chambers. This corridor could be traced for a length of 72 feet, and was 7 feet 5 inches wide. From a pit at its northern extremity came pieces of painted plaster, which showed that the house had been adorned with coloured stuccoes. All the floors, wherever they could be found, were of *opus signinum.* The depth of the chambers in the range had been uniformly 15 feet 4 inches, and the general thickness of the walls 1 foot 7 inches. Both corridor walls and range walls were of the same thickness, in this particular resembling those of House No. 1. The partition walls, however, of the only chamber remaining were somewhat thicker, viz. 1 foot 10 inches, as was also the southern half of the range wall next the corridor. The chamber, the dimensions of which were 16 feet 3 inches by 15 feet 4 inches, had a broad opening, 8 feet wide, in each partition wall, the openings being nearly opposite each other. Possibly the chamber formed a centre to apartments right and left of it, and in such sort would have served as the *tablinum* of the house.

A discovery of some interest was made in uncovering this chamber. When the western jamb of the southern opening was exposed the foundation was seen to contain two worked stones. These on being extracted proved to be the capital and base of a column from some earlier building used up again as building material. The capital was much worn. A drum, probably a part of this column, had been found previously, also used in the same way. This is the second occasion when architectural remains of earlier houses have been found thus worked up, also in this quarter of the town, as Mr. Joyce discovered in House No. 1, *Insula* I., a fragment of a column incorporated in the walling. Both capital and base in the present instance, from their comparatively small dimensions, could only have come from domestic buildings. They are of good type, and may very likely have originally formed part of the structure of a house of the middle of the second century. At some period there seems to have been a good deal of destruction of the earlier houses in this part of the city, and they had never been rebuilt in the old way. The working up of early material and the irregular placing of the buildings in which such material has been found certainly point to considerable changes, the reason for which we can only guess.

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[a] The following were the dimensions of Block I.: eastern chamber, 13 feet by 11 feet 3 inches; passage, 33 feet 4 inches long by 6 feet 6 inches wide; western chamber, 11 feet 3 inches by 12 feet.

Another object of interest found in this house was a fine slab of Purbeck marble, 3 feet long, 1 foot 11$\frac{3}{4}$ inches wide, and 4$\frac{3}{4}$ inches thick. Its surface was so perfect as to permit of its being repolished. At one end there is on each side the hole for a metal cramp or dowel, $\frac{7}{8}$ inch square and 5 inches and 4$\frac{1}{4}$ inches long respectively. Each terminates in a round hole, 2 inches in depth from the edge of the slab.

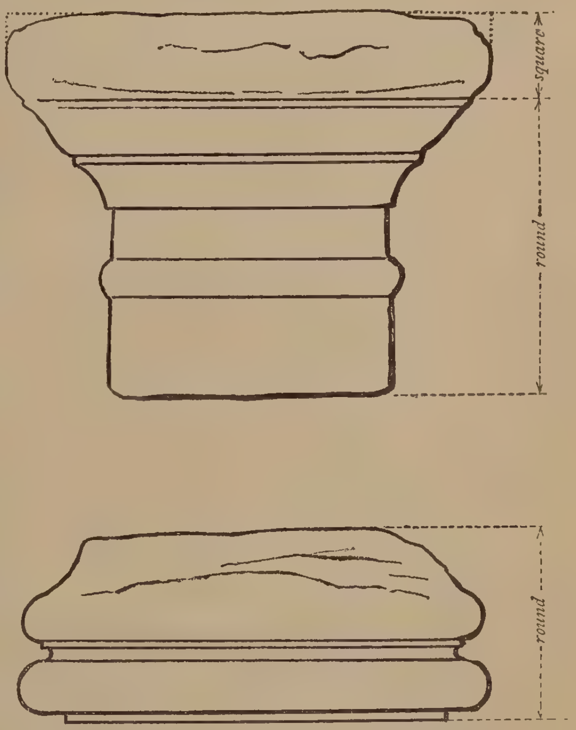

Fig. 1. Capital and base of a column found in *Insula* IX. ($\frac{1}{8}$ linear.)

The building to the west, and nearly at right angles with the remains of the house just described, has been classed with it under the head of House No. 2. Though in fact it was a structure complete in itself, it was possibly a dependency of No. 2. It had a length of 51 feet 3 inches, with a breadth of 29 feet

7 inches, and the walls were 1 foot 6 or 7 inches thick. Internally it was divided longitudinally into two chambers, the first and narrower (No. 1) occupying the whole length of the building, the second (No. 2) having a portion parted off at its eastern end by a wall 13 inches thick. This portion was again divided longitudinally into two unequal spaces, No. 3 and No. 4.

The southern angle of this building runs beneath the hedge of the modern road. About 8 feet from the angle on the south side occurred a brick pier, projecting 3 feet from the wall and having a width of 1 foot 6 inches, and at a further distance of 10 feet 3 inches another similar one. These piers would seem to indicate a wide opening like a barn door between them. Probably the whole building was used for storage, or as stabling, as fragments of flint pitching were found at the east end of chamber No. 1. If the building had lofts, space No. 4 may have contained a stairway to them.[a]

Close to the northern boundary of the *insula*, and 72 feet from the north-west angle, a small patch of the usual tile *tesseræ*, with scattered fragments of loose flint rubble, indicated the position of some building, and 34 feet still further east and close to the street a well may be seen marked upon the plan. This, though noted down as a well, might rather be called a circular pit. It was 17 feet deep and 5 feet in diameter, and in place of the usual boarding the sides were upheld at the bottom by rough stakes and wattling after the fashion of a rude kind of hurdle.[b] It seems possible from the character of the work that this hurdled pit may have belonged to an earlier time than the Roman occupation, though it might have remained in use during a part of that period.

Proceeding now to the part of the *insula* south of the modern road, House No. 3 claims our attention. This house is complete, and shows no alteration in its plan, but, as before stated, it was irregularly placed with reference to the boundaries of the *insula*. The south end, situated upon the main roadway or street of the city running east and west, actually encroaches, at its western angle, upon that street as much as 3 feet 6 inches beyond the general line, and the axis of the house is canted over considerably to the west. The house is of the corridor type, with a large annexe at the northern and a smaller one at the southern end. The main portion measured 68 feet in length and 43 feet in breadth. The corridor serving its various rooms lay on its eastern side, and was 7 feet 6 inches wide. It had originally been paved with brick. It was returned at the northern end for a length of 24 feet in an easterly direction, the last 14 feet being cut off by a wall to form a small room (No. 1). Attached to the northern wall of this returned corridor was a large chamber with a cemented floor (No. 2); there may have been an entrance from it into room No. 1. At the southern end of the main corridor, lying upon the street, was a partly detached chamber (No. 3), which in its position very much resembled a similar one in House No. 3, *Insula* VII. It was in all probability a shop fronting the street. Its walls were parallel with those of the house to which it belonged, and consequently did not stand at right angles with the roadway; the chamber was therefore somewhat irregular in shape. Between the western wall of the shop and that of the corridor was an interval of about 4 feet, divided into two compartments (Nos. 4 and 5) by a thick mass of chalk rubble. It is difficult to make out how this chamber (No. 3) was entered, except from the street, as there were no signs of any communication between it and the house. Be this as it may, the room or shop as it seemed to be had some pretentions to display, for the walls had been plastered and elaborately decorated with painted ornaments. Some of the painted plaster remained round the walls, while many fragments were found on the floor. These fragments showed grounds of yellow, red, and blue, with traces of lines and ornaments upon them, and painted imitations of a marble, apparently a brecchia, exhibiting large circular spots of yellow upon a red ground.

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[a] The dimensions of the various chambers in this building are: for No. 1, 48 feet 3 inches by 10 feet 3 inches; No. 2, 33 feet by 14 feet 7 inches; No. 3, 13 feet 10 inches by 8 feet 7 inches; No. 4, the same by 4 feet 7 inches.

[b] A well of similar construction was found in Leicester in 1860. See *Proceedings of the Society of Antiquaries of London*, 2nd Series, i. 245, where a woodcut of it is given.

The side walls of this shop, which were largely composed of chalk, were finished by piers, the brick footings of which projected something over a foot upon the roadway, the eastern being 2 feet, while the western was 3 feet wide. Another brick footing, 12 feet 6 inches west of the latter, was even larger, having a breadth of 4 feet 6 inches. The full width of the interval between the first and second was 12 feet, and was occupied by a layer of tiles based on a rubble foundation 2 feet wide. In this layer are three breaks, at fairly regular intervals, indicating apparently the posts of a shop front of much the same construction as those of medieval date. If this surmise be correct, the tiles would have been carried up to a convenient height to form a counter between and in front of two of the posts in two of the openings, while the third interval would have been left vacant to form a doorway.

In a pit under the cemented floor of this chamber was found a portion of a large quern and some perfect vessels of pottery, and in the loose earth from near the eastern wall a fragment of foreign marble and pieces of cakes of the same kind of metallic substance which was discovered in House No. 4, *Insula* VIII. Further specimens of this substance were turned up also at the angle of the eastern and northern corridors.

The body of the house consisted of a range of three chambers all of equal depth, viz. 17 feet 6 inches, backed by a second range of the same number of divisions, all 10 feet deep, this second range being in fact a wide corridor divided into three chambers of unequal breadth by cross walls. The average thickness of the walls throughout the house was 2 feet, with the exception of that of the east corridor, which was 1 foot 8 inches thick. At the northern end of the house was a long passage (No. 6) with a doorway, 3 feet wide, into the corridor, and there was doubtless another at the opposite end. If there was an upper floor to the house the staircase probably occupied a portion of this passage.

It should be noted that the arrangement of the external doorways of this house differed somewhat from those of other dwellings of similar plan already found on the site. The principal entrance was not upon the street at the end of the main corridor, where it might have been looked for, but it was placed in its eastern wall about 8 feet from the northern angle. At this point is a block of stone 21 inches wide, projecting 8 inches from the wall; and at a further distance south of it of 8 feet 6 inches in another of somewhat smaller dimensions (viz. 8 inches by 12 inches) also against the wall. It is clear that between these stones was the main entrance to the house from the courtyard in front of it, and not directly from the street. From the north-west corner of the house, where as mentioned there was probably a doorway, a long wall at an obtuse angle extended northward for a distance of 40 feet, when it returned eastward for 26 feet and was then lost. It was merely the wall of an enclosure. Not far from the doorway, and north of it, was a rubble foundation forming a projection in the shape of a reversed L from this enclosure wall.

But to return to the internal arrangements of the house. Chambers Nos. 7, 8, and 9 do not require description. No. 10, however, is of larger dimensions and of more importance. It may have been the *triclinium*. No. 11 has the appearance of a large lobby or passage-room to the various divisions of the house. It had a well-defined doorway 4 feet 3 inches wide, with brown sandstone bases to the jambs communicating with the main corridor, and another 4 feet 9 inches wide led into chamber No. 12. This chamber had undergone considerable changes of destination. As found, it had a floor of very well laid *opus signinum* of excellent quality, and from fragments of plaster that were turned up, the walls must have been brilliantly painted in panels of yellow and red; it was therefore probably the *tablinum* of the house. A depression, however, in the centre of the floor showed, when it came to be dug out, that whatever might have been the later use of the room, the earlier use was that of a kitchen, for beneath the perfectly laid floor of *opus signinum*, 2½ inches thick, was a second, 5 inches thick, of coarser material, and under the depression was a well 18 feet deep. The construction of the well was peculiar. For a depth of 13 feet from the original floor of the chamber it had been lined with flint. All the upper half of this lining had fallen in or been removed, but the lower portion remained in part. This was circular, with a diameter of 3 feet 6 inches; then for the rest of the distance there was a lining of wooden staves, 5 feet long and slightly bowed outwards, in fact forming a large barrel. The staves rested on a wooden curb, 2 feet 4 inches square, the timbers of which had a thickness of 2½ inches and a width of 10 inches, and were dovetailed into each other. The staves were on the average 6 inches wide and 1½ inch thick, and were nineteen in number. On one side of this cask was a bung-hole 2½ inches in diameter and 1 foot 11 inches from the bottom. When the well was cleared out, the water came in through this aperture very freely, and rendered our examination difficult. The woodwork or barrel was well pugged behind with clay, and on this the flint lining partly rested; the bottom beneath the curb was also of the same substance.

Examination showed that the well was filled down to the level of the woodwork with the wreck of the flint lining, in which mass of rubbish only two fragments of pottery were found, both of small vessels of pseudo-Samian ware bearing respectively the potters' marks VERVSF and DITANIM. Beneath this, from the wooden barrel, a quantity of black slush was emptied out. In it lay the remains of the bucket; a few fragments of coarse black and buff pottery with one shard showing a purplish glaze; three nails and the head of a javelin; a small flat top of a vessel of bronze which had been thickly gilt; pieces of leather soles of shoes of two sizes; two oyster-shells and a few bones of oxen and sheep. From the blackness of the mud filling the barrel, and from the condition of the iron remains, it is probable that the well before it was filled up and floored over had been used as a latrine and receptacle for rubbish, but not for long, as the fragments found were but scanty when compared with the contents of pits elsewhere, used for a similar purpose.

The discovery of this well was a most interesting one, because it revealed with exactness the precise method of construction employed in all the wells on the site. Whenever these wells have been dug out, it has been observed that quantities of loose flints have first to be removed before reaching the boarding with which they are invariably lined for part of their depth. Looking to this example, it is now clear that they were, in the upper part, lined with flint, and boarded only in the lower portion, and it seems probable that the boarding was only carried up from the bottom to a height beyond which it was believed the water would not rise.

With this discovery the exploration of House No. 3 was concluded, and we will now pass on to the consideration of other remains.[a]

At the south-east corner of the *insula* occurred a large rectangular enclosure, Block II., the eastern side of which lay along the main street running through the city from north to south. Its southern end faced the main street leading to the west gate. It was 66 feet long by 29 feet 6 inches wide, with fine brick quoins at the southern angles; the walls were over 2 feet in thickness. Attached to its north-west corner was a smaller enclosed space, not quite rectangular, measuring 20 feet each way. No flooring was discovered in either space. At 28 feet west of the larger enclosure another (Block III.) showed itself. Like its neighbour, it had good brick quoins, and abutted on the main street. Its length was 86 feet and its breadth 35 feet; its walls averaged 2 feet in thickness, and there were traces of a wall of the same thickness along the street joining it to House No. 3. The block was divided into two unequal portions, the southern forming a large and undivided area (No. 1), the northern showing five compartments of varying size. This northern division may have been the remains of a small house, and, if so, what appears as a passage (No. 2) probably contained the stair to an upper floor. Of chambers Nos. 3, 4, and 5 nothing can be said. No. 6 had been a large room warmed by a composite hypocaust, in which the pit for the *pilæ* was surrounded by unusually narrow banks of rubble next the walls, through which passed the passages to the wall flues. The furnace passage was in the south wall of the chamber at the north-west corner of the enclosure No. 1. From the disposition of this furnace passage and the arrangement of the wall flues it seems certain that the room was entered from chamber No. 3.

A question arises as to whether the large area No. 1 was ever roofed over.

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[a] The following are the dimensions of the various chambers of House No. 3: No. 1, 8 feet 1 inch by 10 feet; No. 2, 17 feet 8 inches by 29 feet 7 inches; No. 3, 14 feet 9 inches by 13 feet 7 inches; No. 4, 3 feet 11 inches by 4 feet 9 inches; No. 5, the same by 6 feet 11 inches; No. 6 (passage), 6 feet 10 inches by 29 feet 6 inches; No. 7, 10 feet by 15 feet 3 inches; No. 8, the same by 15 feet 6 inches; No. 9, the same by 20 feet 5 inches; No. 10, 17 feet 6 inches by 26 feet 8 inches; No. 11, the same by 10 feet 8 inches; No. 12, the same by 15 feet.

If it were, there must have been posts so disposed as to support the roof. Perhaps a large block of sandstone near the southern end may be one of a line of similar blocks on which such posts would certainty be raised.

Near the southern end is a rectangular bed of tiles with a base of a flue down the middle. It lay north and south, and was about 5 feet long by 4 feet wide. The probable use of this and the area in which it is placed will be discussed presently.[a]

The last building (Block IV.) to be described in *Insula* IX. lay at the south-west angle, one of its sides and its southern end lining the streets bounding the *insula*, as in the corresponding block at the south-east angle. North and south it had a length of 59 feet, with a breadth of 32 feet 10 inches.[b] In places a considerable quantity of ironstone was worked up in the walls.

The enclosure was divided in a similar way to Block III., having a large area upon the street, with two chambers behind it of unequal size. Here, again, blocks of stone (ironstone in this instance) were found, which may have been used as bases to posts supporting a roof to the area. One was lying loose in the enclosure, another was attached to the north wall near the east side. A patch of flint rubble occurred also in the centre, but it is doubtful whether it could have had anything to do with supports to the roof.

At 12 feet from the street, against the east wall, and at right angles to it, lay a mass of roof tiles with a central flue. It was 6 feet long, and there was no sign that the flue had any outlet through the wall. The fragment resembled the one found in Block III., except that it abutted against a wall instead of being in the open ground, and that it lay east and west instead of north and south. The bed of this flue lay about 1 foot 6 inches beneath the level of the tessellated tile floor of No. 2, the smaller of the two chambers at the north end of the block. Since that floor represented the general ground level, it follows that the flue was beneath it; a fact to be borne in mind when dealing with similar remains found in the other *insulæ*.

There was a doorway in room No. 2 communicating with the area (No. 1), and a pit lay under the wall separating the two chambers. Chamber No. 3 also had a doorway 5 feet 3 inches wide, with a tile sill, from the area. Neither in the area nor in the latter chamber were there any traces of flooring.[a]

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[a] Dimensions of chambers in Block III.: No. 1 (area), 45 feet by 31 feet 2 inches; No. 2 (passage), 16 feet 7 inches by 3 feet 7 inches; No. 3, the same by 9 feet 4 inches; No. 4, 12 feet 9 inches by 15 feet 7 inches; No. 5, the same by 17 feet 6 inches; No. 6, 18 feet 1 inch by 16 feet 3 inches.

[b] Its north, south, and west walls averaged 2 feet 3 inches in thickness, the remaining one being only 1 foot 8 inches thick.

Insula X. was of the same length (386 feet) as *Insula* IX., but was 10 feet wider, or 284 feet in all. (See plan, Plate XLVI.) The modern road crosses it diagonally, separating it into two almost equal parts. It was divided from the surrounding *insulæ* on the north, east, and west by streets or roadways having an average breadth of 18 feet. On the south, the main street east and west through the city formed its boundary, and was there from 23 to 25 feet wide. It is only directly upon and along this street (with but two or three exceptions) that remains of buildings were found. These were certainly not houses, and there is strong reason for believing that they were workshops and storerooms. Five out of the six whose traces can be made out in this *insula* had, with trifling modifications, the same plan as Block IV., *Insula* IX.; in fact, that block may be taken as the type of the buildings in all the *insulæ* under consideration, consisting of a large area with two chambers in or attached to its northern end. Block I., at the south-east angle of the *insula*, was 60 feet long by 37 feet 6 inches wide, with walls 2 feet thick. Of the chambers at the northern end only a portion of the wall dividing them from the area remained; all else had been swept away. Penetrating the west wall of the area at 19 feet from the south-west angle were the tiles of a flue (A) similar to those noted in Blocks III. and IV. of *Insula* IX., and at 6 feet further north a rubbish pit occurred underlying the same wall. At the northern end of the area, close to the remains of the party wall, lay a circular furnace (B). It was sunk in the ground, its tile floor being 2 feet 9 inches below the level of the neighbouring street. Its diameter was 2 feet 4 inches, and the sides were roughly built of broken tile, three courses of which remained, the middle one being laid in herring-bone fashion. Clay had been used as mortar, and was burnt to redness by the heat of the fires, which had also turned the tile floor of the furnace to an ashy grey. Near by, in fact undermining the chamber wall, was a large hole or ash-pit completely filled with fine charcoal dust, the refuse of the fires.

From the south-west angle of Block I. a wall bordered the street, and towards its western extremity formed the southern limit of Block II., of which nothing remained but the gravel foundations of its walls. These showed an enclosure

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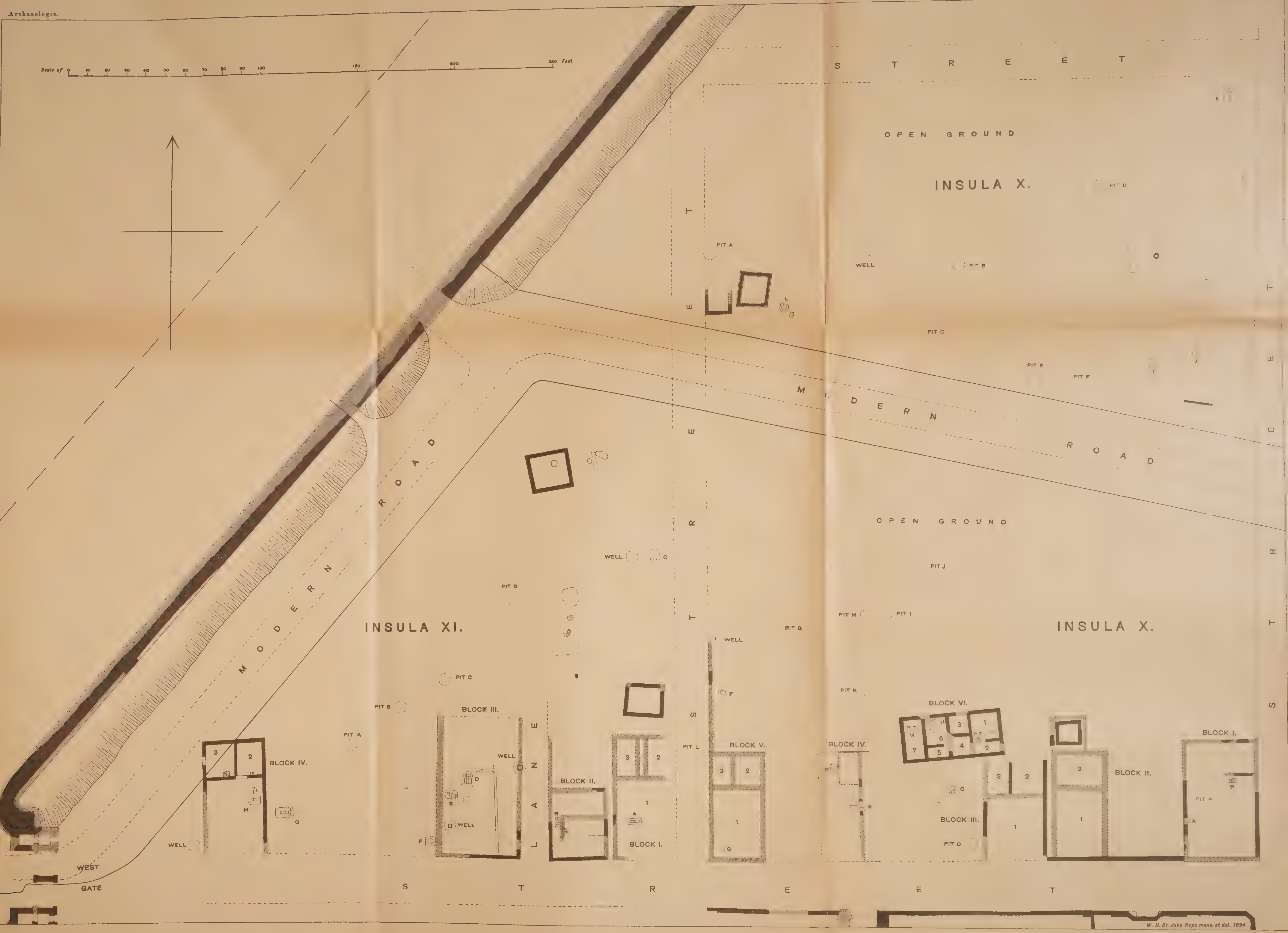
[a] The dimensions of the various divisions of Block IV. are as under: No. 1 (area), 34 feet 10 inches by 23 feet 6 inches. Chambers: No. 2, 17 feet 9 inches by 11 feet 1 inch; No. 3, the same by 15 feet 3 inches.



W. H. St. John Hope mens. et del. 1894

SILCHESTER.—PLAN OF INSULÆ X. AND XI.

54 feet 3 inches long by 27 feet 7 inches wide. At the northern end a transverse line of foundations indicated the limit of the chambers, but the space thus marked off had not the usual division into two compartments. Possibly a partition had formerly existed, but of it we could find no trace. At a distance of only 2 feet 10 inches from the north end of the block, and towards its western side, lay a chamber imperfectly rectangular, which measured 13 feet 7 inches by 10 feet 4 inches. Nothing remained of its walls but the gravel foundations, 2 feet thick; on the east side these were prolonged to touch the wall of the block. Within this chamber or enclosure was a second, the walls of which were 2 feet in thickness, with brick quoins. They lined the foundations of the larger one on the north and east sides, were within 8 inches of them (on an average) on the west, and were rebuilt upon them on the south side. It is by no means easy to guess what these constructions were. Mr. Hope suggests that the inner enclosure may have been a tank. There were, however, no remains of plastering with which tanks were generally lined, but still such a use of the enclosed space is not impossible.

Block III. was in close proximity to Block II., being separated from it by an interval of less than 3 feet. The north and south walls had been completely removed. The length of the block was about 50 feet, its width 31 feet.[a] The two chambers at the northern end could be made out, the eastern was the wider of the two. In the western was a doubtful trace, against the partition wall, of a circular furnace similar to that in Block I.

A space of open ground 20 yards in width occurs between Block III. and the next to the west, Block IV. In this open ground, 16 feet from the west wall of Block III., and 33 feet from the street, another circular furnace (C) was uncovered. It was like that already described as found in Block I., but in this case of larger size, and not sunk below the surface level. Nothing but the mere base of it remained with the first course of tiles forming its sides, the indication of the opening, and the much calcined hearth.

Block IV. is a mere wreck. The east wall only could be traced, showing a length of 55 feet, at the end of which were faint indications of the northern wall. There were also lines of flint showing the limits of one of the chambers at the north end. The rest of the structure had entirely perished. There are nevertheless two noticeable fragments in this block. Close to, and on the west side of the line of flints indicating the partition wall of the one chamber still to be traced, is a patch of tiling (D) showing the signs of a flue at right angles to the wall, with the start of another parallel to the same wall. But similar remains in the area of the block are still more noteworthy. At 25 feet from the main street, lying against and at right angles to the eastern wall, a mass of brickwork (E) was uncovered, 5 feet across and projecting 4 feet 6 inches into the area. It was composed, for the most part, of rudely built up layers of broken roof tiles laid with wide joints, with clay for mortar. In this mass of brickwork were the remains of a flue, its eastern end passing through the wall and its western one terminating in stone jambs, of which one remained to a height of a foot. The flue was 10½ inches wide, its sides stood to a height of 8 inches, and the bottom was laid with roof tiles, fairly perfect and much burnt. The western end of the mass of brickwork, where the stone jambs were placed, was much ruined, but there seemed some indication of a cross flue at right angles to the one described. (See Plate XLVII., Fig. 1.) What appeared to be one floor tile of this cross flue remained about 2 feet north of the flue opening. It lay at the same level as the bottom of the flue, and was much burnt, a sure sign of its having been part of such a floor lining. The whole mass of brickwork had sunk inwards from the wall. It was based on a thick bed of burnt clay, and at 1 foot 3 inches beneath the level of the flue, and under this bed, lay fragments of a rough tile pavement. The bed of burnt matter could be traced here and there throughout the whole block, but more especially towards the southern end.

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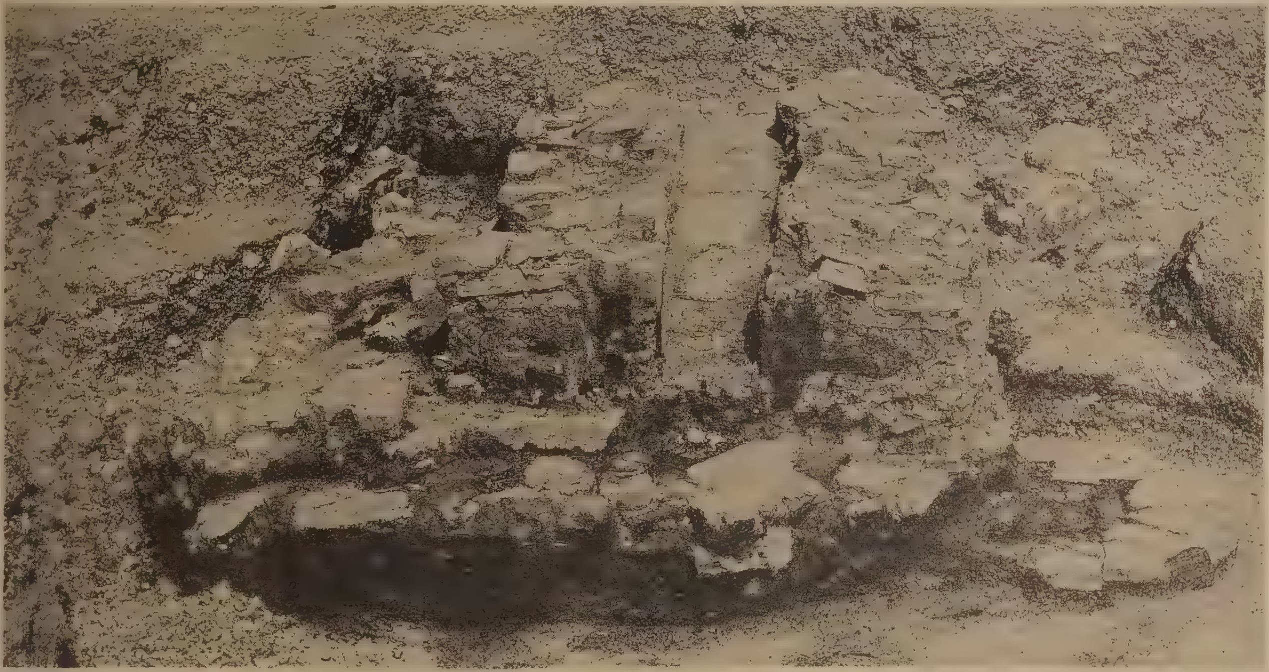
[a] The walls were 1 foot 10 inches thick.

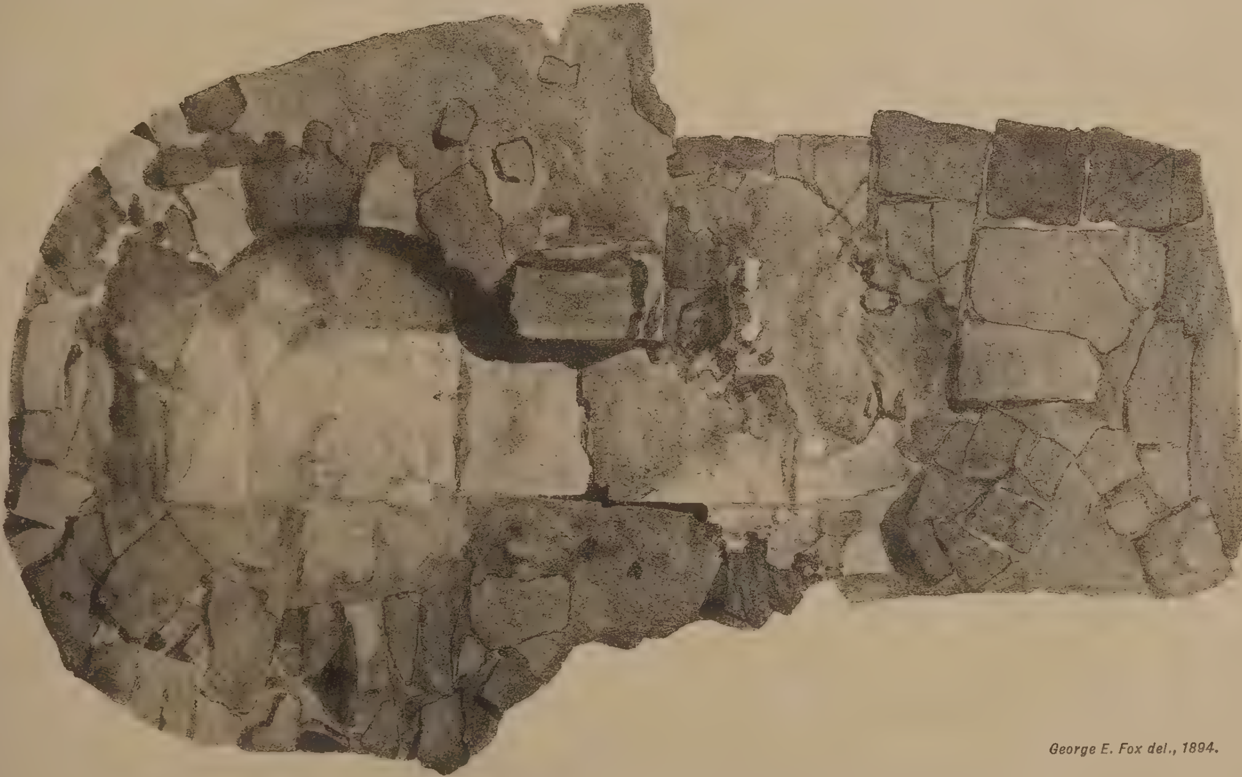
The next and last block on the line of the street, Block V., was situated at the south-west angle of the *insula*. Although nothing but the gravel foundations of its walls remained, its dimensions could be perfectly made out. It had a length of 55 feet with a breadth of 27 feet 8 inches, and exhibited the usual arrangement of an area and two chambers. Its western wall, which lined the end of the street dividing *Insula* X. from *Insula* XI., could be traced northwards from its north-western angle for a length of 53 feet, at which point it was interrupted by a well which had been sunk close upon the street. This well was 16 feet deep from the present surface. Its wood lining remained to a height of 8 feet 4 inches from the bottom and was 2 feet 6 inches square. No trace of the wall could be found north of this well. At a point half-way between the well and Block V., and a few feet east of the wall, occurred the remains of a circular furnace (F), and at the north-west corner of the block, quite in the street, was a rubbish pit.

The interesting discovery was made in Block V. of a quern (G), which was



1. FLUE IN BLOCK IV, INSULA X.

From a photograph.



George E. Fox del., 1894.

2. FURNACE IN BLOCK III, INSULA XI.

SILCHESTER.—TYPES OF FLUES AND FURNACES FOUND IN 1894.

found *in situ* at the south-west corner of the area (No. 1). It was of the usual form found on the site, viz. a flattened cylinder of no great thickness. It was 3 inches thick in the centre and 1½ inch thick at the edge, and measured 17½ inches in diameter. It was fixed upon a circular base of the same diameter, of imperfectly burnt brick, 2 inches high. The floor beneath it appeared to be of burnt clay. The upper stone had been broken but the pieces lay near. Strewn around were fragments of charred boarding and charcoal as if part of a burning roof had fallen upon it.

Block VI. now claims attention. It has been left until the last in this description since it differs both in position and arrangement from the others, being placed mainly in a parallel direction with the main street at some 50 feet from it, and having its axis east and west, whereas in all the other blocks the axis lies north and south. Its eastern end overpassed the north-west angle of Block III. by about 11 feet. It was 50 feet long by 23 feet wide, and was cut up into four unequal spaces by party walls. Three out of four of these divisions were each subdivided unequally, and thus the whole building was parted into seven chambers of varying size. No. 1 showed traces of a tile floor, and amongst the rubbish the stones of two querns were turned up. A shallow rubbish pit occurred in the south-west corner. Chamber No. 7 may also have had a tile floor, and another rubbish pit lay under the partition wall between it and the adjoining room (No. 6). This latter chamber contained the base of a circular furnace (H), close to the northern wall. As further reference will be made to this singular building we may pass on now to other matters.

Between the row of buildings spoken of as bordering the southern end of the *insula*, and the modern road which crossed it, extended a considerable space of ground in which no constructions could be detected, but in which a certain number of rubbish pits were to be found. The rest of the *insula* to the north of the modern road had also rubbish pits scattered over it, and on the eastern side remains of circular furnaces (I, J, K) with what looked like the fallen tile roof of a shed or wooden building, 13 feet square. On the eastern side of this structure was a small shallow well or pit lined with flint.

On the western side of the *insula*, where the modern roadway crosses the line of the ancient street, were the remains of a chamber floored with tile *tesseræ;* and close to its eastern wall, at an interval of only 3 feet, the perfect foundations of another, roughly square in form, 14 feet by 12 feet 4 inches, and with walls 1 foot 7 inches thick. The last to be mentioned of the circular furnaces (L) occurring in this *insula* was found at 6 feet from the south-east corner of this chamber.[a]

We now come to *Insula* XI., which is triangular in shape. (See plan, Plate XLVI.) It is divided from *Insula* X. by a street on its eastern side. It is bounded on the south by the main street through the city, and has the western gate at its south-western angle. This side was 356 feet long. On the third and longest side the city wall running north-east and south-west formed the boundary, and measured along the foot of the mound was 486 feet in length. The modern roadway occupies a considerable strip of the *insula* within the city wall.

As in *Insula* X., the buildings, with slight exceptions, lay along the main street, and were of the same character. Block I., at the south-east angle, had the same plan as that of the majority of the blocks already noted, viz. an area upon the street backed by two chambers of unequal size, but with this difference, that the two chambers were divided by a space 2 feet wide. This may have been somewhat wider when the walls were erect, and probably contained a rough stair to lofts over the chambers. The east wall of the block had disappeared, but the general dimensions could be made out. The block was 61 feet 9 inches by 31 feet 8 inches. In the area, 17 feet from the street and parallel to it, was a fragment of a long flue (A) similar to those observed in the blocks in *Insula* X. About it was much wood ash, and the whole surface of the area, wherever examined, showed a surface of burnt matter. From the excavations here was turned up another of those round saucer-shaped cakes of metallic substance of the same nature as those found in House No. 3, *Insula* IX., and elsewhere.

At a distance of 9 feet north of Block I. lay a detached quadrangular chamber with foundations largely constructed of ironstone.

Block II., in close contiguity to Block I., there being only an interval of 3 feet between them, breaks by its different form the line of buildings, all of similar plan hitherto described. It measured 36 feet in length by 26 feet 5 inches in breadth. There were no signs of chambers; it consisted simply of a large area, within which were traces of walls enclosing a somewhat smaller area on the eastern side. This again seems to have had some internal partition, but nothing can be clearly made out. Against the foundation of the north-west angle of the inner area were two fragments of flues (B), whose direction was parallel to the main road.

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[a] The dimensions of the various blocks in *Insula X.* are here appended:

Block I. Area 40 feet by 33 feet 6 inches. Depth of chambers 15 feet 1 inch.

Block II. No. 1 (area), 32 feet 9 inches by 27 feet 7 inches. Undivided space at north end. No. 2, 15 feet 1 inch by 27 feet 7 inches.

Block III. No. 1 (area), 29 feet 6 inches by 31 feet. Chambers: No. 2, 16 feet 9 inches (?) by 15 feet 2 inches; No. 3, the same by 10 feet 5 inches.

Block IV. Area 35 feet (?) by 20 feet 2 inches (?). Chamber 15 feet by 8 feet 6 inches (?).

Block V. No. 1 (area), 34 feet 1 inch by 23 feet 10 inches. Chambers: No. 2, 14 feet 10 inches by 12 feet 9 inches; No. 3, the same by 9 feet 3 inches.

Block VI. No. 1, 13 feet 1 inch by 12 feet 8 inches; No. 2, the same by 5 feet 3 inches; No. 3, 9 feet 2 inches by 8 feet 8 inches; No. 4, the same by 9 feet; No. 5, 10 feet 2 inches by 5 feet; No. 6, the same by 13 feet 2 inches; No. 7, 19 feet 7 inches by 8 feet 8 inches.

The west wall of Block II., with a continuation of it northward, and the east wall of Block III., formed the boundaries of a lane 14 feet 6 inches wide which ran up towards an isolated square chamber situated near the bend of the modern road. This chamber, which may have had a doorway at its north-west corner, showed traces of a much burnt floor as of clay reddened by heat. Among the fallen rubbish of the walls, at the opposite angle to the door, was found a sword blade and some fragments of iron.

Half-way between this building and Block II. two patches of burnt material are to be seen indicated on the plan, perhaps the remains of floors, or flues, or furnaces, and near them a small piece of walling. A similar but larger piece was uncovered to the east of the square building, having on one side of it some flint pitching and on the other part of a cement floor. These faint indications of some structure and the lane close by may possibly point to the existence of a house on this spot at an early period, to which the square chamber may have belonged. The suggestion is given here for what it may be worth.

Not far from these burnt patches there was found in the earth on the side of a pit (D), but not in the pit, between 3 and 4 feet below the present surface of the soil, a black vase filled with silver *denarii*. They were 253 in number, and ranged from Marc Antony to Septimius Severus, early in whose reign the treasure was probably buried. These coins were mostly much worn. Being of silver they were promptly claimed by the Treasury as "treasure trove," but after deduction of thirty-nine specimens which were not represented in the national collection in the British Museum, the rest of the hoard was given back, and will form part of the Silchester collection at Reading.[a]

Near the street dividing *Insula* X. from *Insula* XI., at 150 feet from the south-east corner of the latter, lay the remains of a circular furnace (C), and a few feet west of it was a well of the usual construction.

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[a] A full list and details respecting this treasure, obligingly communicated by our Fellow Mr. H. A. Grueber, will be found in the Appendix to this Report.

Block III., situated at the junction of the lane just mentioned with the main street, was of considerable size. All trace of its northern wall is gone, but the block can be guessed to have been 71 feet long by an ascertainable width of 43 feet. The foundations of its western wall showed an exceptional thickness of nearly 3 feet. No trace of chambers could be discovered. In the area, near the eastern wall but not quite parallel to it, were found the remains of a wall, that from its thickness and the depth at which it was discovered, had evidently formed part of one of the earlier buildings of the city. At 42 feet from its southern end was the start of another wall running west. Immediately to the south of this at a higher level lay the remains of a circular furnace (D). (Plate XLVII., fig. 2.) South of this again and nearer the west wall the base of a flue (E) could be made out in a mass of burnt earth and tiling. The direction of this flue was nearly but not quite parallel to the street. The whole mass was at a slightly higher level than the floor of the neighbouring furnace.

On the same side of the enclosure, at 18 feet from the main street, occurred a wood-lined well of the usual construction, and another was found beneath the foundations of the east wall, and encroaching on the lane, at 45 feet from the south-east angle. This second well was 16 feet deep and 2 feet 2 inches square, and two boards deep of its wood lining remained at the bottom.

A stretch of ground over 28 yards wide intervened between the block just mentioned and Block IV., the last in the *insula*. Although no foundations of buildings were to be found in this interval other remains occurred in it. Just outside the south-west corner of Block III., at a few feet from the street, was the floor of a circular furnace, and north-west of this were some patches of floors or the wreck of flues. Again, near the east wall of Block IV., at 19 feet from the street, another mass of tiling, similar to that in Block III., was uncovered, with the base of a flue in it 7 feet long. The axis of the flue was very nearly parallel with the main street. Block IV. was distant 24 yards from the double western gate of the city. No structures of any kind could be found between it and this gate. It may therefore be surmised that the neighbourhood of the gate was left largely free for the exigencies of traffic and defence. Each wall of the enclosure could be made out, with the exception of the southern one, of which not a stone remained. The block measured 59 feet in length, by 31 feet 9 inches in breadth. The plan was the same as that of the majority of the other blocks, a large area backed by two chambers, side by side, of unequal width, in this case with well-preserved walls. In the west wall of chamber No. 3 was a doorway, 4 feet wide, communicating with the road or space on that side, and there was another, with a tile sill, between chamber No. 2 and the area No. 1. Both chambers had been paved with tiles. In the area was found a mass of tiling, containing a flue, close to and at right angles with the eastern wall. It was very similar to, but rather smaller, than that in the open ground outside the same wall. A length of 5 feet of this flue could be traced. North of it were the scanty relics of a circular furnace, and all the soil around both was much blackened and burnt.

Nothing further was observed in the area, but close without the south-west angle of the enclosure, where the main street falls into the open space about the gate, was a circular well, 4 feet in diameter, 12 feet deep, and lined throughout with flints. As it was sunk beside the roadway, just outside the corner of the enclosure, it may possibly have been used for watering horses and draught cattle entering the city.

A certain number of pits were found in this *insula*, but, as was the case with others in *Insula X.*, the finds in them were scanty, a fact which has some importance attaching to it, as will be seen later on.[a]

The last *insula* to be described is that we have numbered XII. It lies due north of *Insula* X., and, like *Insula* XI., was triangular in shape. The side

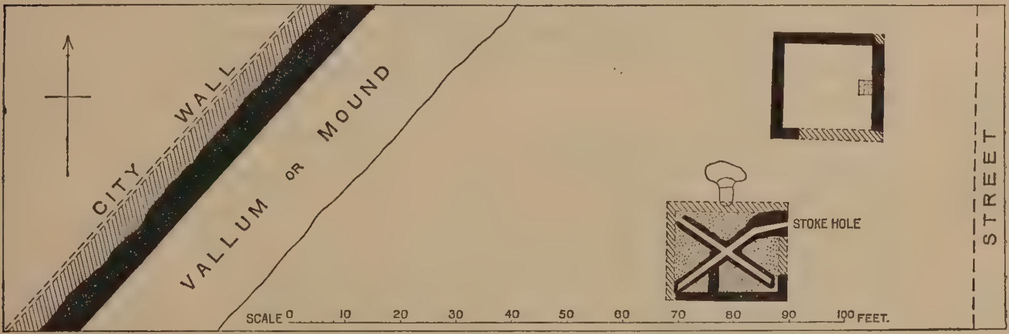

Fig. 2. Plan of buildings discovered in *Insula* XII.

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[a] The following are the dimensions of the divisions in the blocks of *Insula* XI.:

Block I. Walls 2 feet thick. No. 1 (area), 37 feet 8 inches by 27 feet 8 inches. Chambers: No. 2, 18 feet 9 inches by 12 feet 3 inches; No. 3, the same by 9 feet 5 inches. Chamber north of Block I. walls 2 feet thick, 13 feet by 15 feet 9 inches.

Block II. Walls averaging 1 foot 9 inches thick. Area, 32 feet by 25 feet 8 inches; inner area, 19 feet 9 inches by 18 feet 9 inches.

Block IV. Walls 1 foot 10 inches thick. No. 1 (area), 36 feet by 28 feet 3 inches. Chambers: No. 2, 16 feet 6 inches by 12 feet 6 inches; No. 3, the same by 14 feet 6 inches. Chamber at angle of modern road, walls 2 feet thick, 17 feet 9 inches by 16 feet 4 inches.

abutting upon the road dividing it from *Insula* X. was 272 feet long from the foot of the mound. The eastern side was 316 feet long, and the north-western side, where it was bounded by the city wall, measured along the foot of the mound 418 feet. Few remains of buildings were to be found within the boundaries of this *insula*.[a] Such as occurred were at the northern end, where two chambers (see plan, fig. 2), 12 feet apart, were dug out. The more northerly had been paved with square tiles, but presented no other features for remark. The southern contained a channelled hypocaust, the ducts of which ran diagonally from angle to angle. The walls did not remain to a sufficient height to show the arrangement of the flues, but there was a well-built furnace passage of brick in the north-east corner. Outside the north wall some rough tiling perhaps showed the presence of a furnace of some kind.

The two chambers[b] appeared to be entirely detached. If they were in any way connected with other buildings these had been completely destroyed. A little south of these structures, and close to the street, the base of a circular furnace (A) was uncovered. But the contents of a pit near the south-east angle offered more matter for remark than any other discoveries made in this quarter. This pit (B) yielded as many as a dozen nearly perfect vessels of pottery. They were found at a depth of 8 feet 4 inches from the present surface of the soil, and seemed as if they had been deposited in three distinct layers. There were patches of moss above and about them, and some bones of animals. The pit was dug out to its full depth of 16 feet. It had a clay bottom, and showed little of the black deposit not uncommon in these rubbish holes. The vessels were of various forms of *ollæ*. Three of them were hand made, of that coarse ware, generally black and badly baked, the paste of which contains a considerable quantity of pounded flint or chalk. It should be noted that the kind of pottery here mentioned differs in its paste from all the other classes of fictile ware found on the site, though unquestionably of the Roman time. It is found in considerable quantity, as often moulded by hand as turned on the potter's wheel. Vessels of some size were made of it, but from the want of cohesion in its composition perfect specimens are rare. It may be added that the vessels showing the character of paste described are of the simplest forms of *ollæ*, the chief variation they possess being in the shape of their rims. Such ware might be looked upon as the production of native potters, little influenced by the better methods of manufacture introduced by the Romans. There is, however, a better class found on the site which singularly enough seems an attempt at an improvement on this coarse primitive manufacture. The forms of the vessels in this class are more varied, and the vessels themselves have always been made on the wheel. They are generally red in colour, and the paste contains fewer grains of flint. Two specimens of this class were among those deposited in the pit, and they may be compared with the three first mentioned.

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[a] From the paucity of buildings, etc. in the *insula*, it has not been thought necessary to give a complete plan of it here. The only buildings found in it are shown in fig. 2, to the same scale $\frac{1}{30}$ inch to a foot) as the other plans.

[b] The following are the dimensions of the two chambers in *Insula* XII.: the northern, 16 feet by 16 feet 3 inches, walls 2 feet thick; the southern, 14 feet 8 inches by 18 feet 9 inches, walls 1 foot 8 inches thick.

The pottery found at Silchester has not as yet been taken in hand by any specialist, though it is seldom such an opportunity occurs, or is likely to occur again, for a careful examination of such varied amount of material, found also on one site and without any earlier or later admixture. The study, no doubt, would require some time and patience, and the leisure which few in these days appear to possess, but it certainly would repay the trouble bestowed upon it.

With the description of this last find the detailed account of the four *insulæ* examined last season may be brought to a close.

From that account it will be seen that in the *insulæ* described, although there are a large number of buildings or traces of such, very few are of a domestic character. The deduction may therefore be drawn from the nature of the buildings, but more especially from the accessories found in and around them, that this north-western quarter of the town was given up to some important industry.

We have now to endeavour to ascertain what that industry was.

After the completion of the excavation of *Insula* IX., and while that of *Insula* X. was in progress, it was at first thought, from the number of querns found and from the knowledge that an equal number had been dug up in a neighbouring *insula* (II.), that we had come upon the traces of bakeries, the circular hearths or furnaces being at first sight not unlike the bases of ovens. But a very slight examination proved that this could not be the case, and the number of the querns dug up in the trenches would certainly not have sufficed to furnish a quarter of the workshops along the main street had they been bakeries.

Still less could the remains be those of potteries. The furnaces were distinctly not potters' kilns, and there was a complete absence of the accumulated *débris* of broken and distorted vessels always to be found where potteries have been established.

The discovery of several cakes of metallic substance in *Insulæ* IX. and XI. was thought to be an indication that some metallurgic process had been carried on in certain of the enclosures; but although the flues found in most of the blocks might have been the remains of hearths used in such a process, the circular furnaces certainly were not so used, and no refuse nor scoriæ were to be found about any of the furnaces. It is true that the earth in some of the areas presented a blackened or reddened appearance, but this might have been caused by the destruction by fire of the wooden roofs which covered them, or have resulted from the presence of the wreck of broken-up hypocausts.

If metal workers had not plied their trade here, it was equally certain that the blocks had not been occupied by tanners; neither could fullers have carried on their business in them, since fulling requires a large supply of water. Certainly there were wells, of which we found three or four in *Insula* IX., one in *Insula* X., and four in *Insula* XI., while a certain number of the pits in two if not three of the *insulæ* were in all probability used as such, they having been found clean and with few objects in them. Also, in this part of the site the water rises readily, and is obtainable at a less depth than elsewhere. Still even the supply named would not have sufficed for fulling operations on such a scale as the remains of the buildings would indicate.

A careful examination of the remains led us to the conclusion that it was from the circular furnaces most was to be learned, and that could we ascertain to what use these had been put, we should be in the way of discovering what was the handicraft, the traces of which our excavations had this year revealed.

The flues occurring in the areas of the blocks have been already sufficiently described, but the furnaces require some further elucidation.

These furnaces appear to have been rude cylinders built up, for the most part, of broken tiles laid with thick joints of clay for mortar. (See Plate XLVII., fig. 2.) They may have been from three to four feet high, with a circular boiler, possibly of iron or bronze, set in the mass of brickwork of which each was composed. Nothing, however, remains of any superstructure; only one or two courses of tiles surrounding a tile hearth are now to be seen in any of them, with occasionally fragments of stone jambs to the openings. The openings or mouths of the furnaces have an average width of 1 foot, and are sometimes turned to the north, sometimes to the south. The diameter of the hearths varies from 2 feet to 2 feet 9 inches, that of the greater number being 2 feet 6 inches. The tile floors are burnt to an ashy grey from the fierceness of the fires, as is the flooring in front of the openings from the raking out of the hot ashes. It is to be noted that while few of these circular furnaces are to be met with in the blocks, the long flues are, with one exception, never found outside them.

A search amongst the sculptured reliefs upon sepulchral monuments from Italy and Gaul, and more especially from Gaul, might possibly throw some light upon the object of these structures, for the buildings and implements connected with trades are often figured in such reliefs; but, as always, the surer way was to seek in the ruins of the Campanian cities for the solution of the question, and we believe we have found that solution within the walls of Pompeii. In that city,

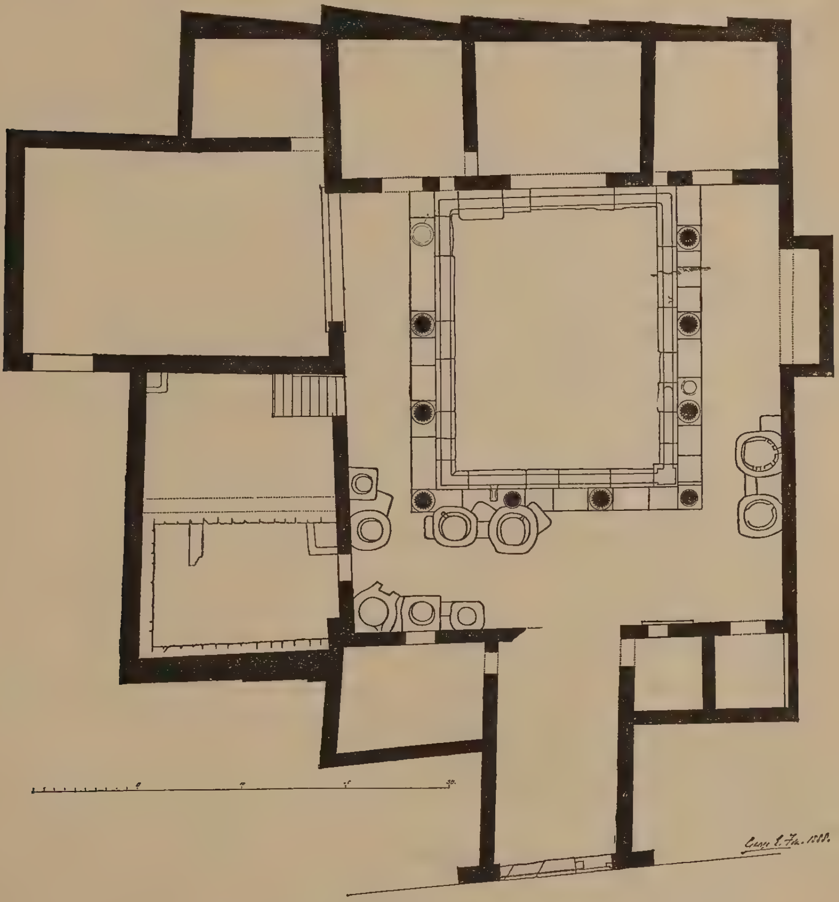

Fig. 3. Plan of a Pompeian house used as a dyeing workshop.

situated in the street of Stabia, is a fine house,[a] originally of the Samnite period, but altered at a later time. It consists of a spacious peristyle, to which access was obtained from the street through a wide vestibule. The peristyle was surrounded by various chambers, the principal being a large *tablinum* with a chamber of a fair size on either side, and near it a spacious *triclinium* or *œcus*.

The fact of importance to the present inquiry with respect to this house is that between the columns of its peristyle and against the back walls are a series of furnaces, which, had they been reduced to the condition of those at Silchester, would have presented identically the same appearance. (See Fig. 3.) Not only that, they agree almost to an inch in dimensions. If therefore such a close likeness is to be relied upon, it may with reason be considered that the furnaces at Silchester and those in the house in Pompeii were built for the same purpose.

We know from an inscription, and from a painting now faded,[b] that the house in Pompeii (which was certainly not originally built for the purpose) had been converted to the uses of a dyer's workshop; the furnaces it contained were therefore constructed to serve the uses of the dyer's trade. Looking then to the likeness between the remains at Silchester and those at Pompeii, we may fairly come to the conclusion, which was also independently suggested by Mr. Hope, that the occupation of dyeing was practised at some period in this quarter of the town of *Calleva*, and that the excavations of last season have revealed very considerable traces of the means by which it was carried on.

A word or two must suffice to describe the Pompeian furnaces. They are rude cylindrical blocks, roughly built up of equal quantities of mortar and stone, and from 3 to 4 feet in height. (Fig. 4.) The mouths have jambs and lintels formed generally of lava. Within is a ring of brickwork forming a set-off to the sides, 3½ inches wide, and from 1 foot 6 inches to 1 foot 10 inches high, on which rested the cauldron or vat to contain the dye. Occasionally this set-off has flues in it, to allow the heat to penetrate to the sides of the cauldron, and there is always a smoke flue with its exit in the top of the masonry near the rim of the vat. The metal vats have all disappeared. The diameters of the furnaces vary. The largest is 3 feet 4 inches across the top, and measured on its floor 2 feet 9 inches, or exactly the size of the largest of the furnace hearths at Silchester, where only the diameters of the floors can be made out.

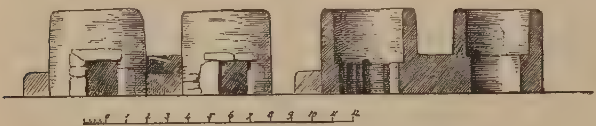

Fig. 4. Furnaces in a dyer's workshop at Pompeii.

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[a] *Regio* VII., *Insula* II., No. 11.

[b] Fiorelli, *Descrizione di Pompei*, 184.

The greater number of the furnaces at Silchester were in open ground, but it does not follow that they therefore originally stood exposed to the weather. On the contrary, there is every probability that they were covered by at least wooden sheds. These have, of course, perished, but perhaps the remains of the roof of one may be seen in the square of broken tiling in the northern half of *Insula* X. Such sheds as these, if left only to the action of time and weather, would soon fall to decay and disappear, leaving but few or no traces.

It may be objected that the comparatively small size of the furnaces would not allow cloth to have been dyed in them; but if we suppose, and the supposition is a reasonable one, that winches were rigged up over the vats, there could be no difficulty in dyeing narrow pieces of cloth of some length by keeping the cloth revolving in the boilers by these means. There is no sign of such arrangements over the Pompeian furnaces, and consequently the articles must have been moved and stirred with sticks in the boiling vats.

If the use to which the furnaces were put can be determined with some certainty, this is not the case with the buildings near and round which they occur. As has been said, houses they cannot be, and some, if not all, must have been appropriated to the purposes of the trade carried on in this quarter. As to those which contain remains of circular furnaces there can be no doubt; with the others it is not so easy to divine their use, but perhaps it may be fairly guessed.

Referring again to the dyer's house in Pompeii, it should be noted that the columns of the peristyle show that nails had been driven into them to support lines on which the dyed cloths could be hung to dry. It is clear that this accommodation was far too limited, and besides, there was the disadvantage of the reek from the furnaces close by. It is equally clear why the dyers established themselves in the dilapidated mansion, namely, that the spacious *triclinium*, as well as the *tablinum* and other chambers, afforded ample room for the drying of their goods under cover and for the storage of the same. As at Pompeii, so here at Silchester, covered spaces independent of weather would be required, and as our climate is far less favourable for drying than that of Italy, recourse to artificial heat must often have been found necessary. The areas of the blocks along the main street, which have long flues in them, may have served the purpose of drying sheds, if we suppose that the remains of these flues indicate the existence of rude stoves fashioned somewhat after the manner of channelled hypocausts.

The two chambers of unequal size which are to be found at the north end of each of the areas or sheds, might have served a variety of purposes. Some no doubt, those for example which show tiled or tessellated floors, might have contained the presses for the better class of goods; in others, cloths, woollen yarns, or wool in its unwashed state, or ready for the vat, might have been stored.

Another theory with respect to the use of some of the areas may here be put forward.

At the present day the materials requisite for carrying on the operations of a trade are but seldom drawn from the neighbourhood in which that trade is practised. In building, for example, the timber used may come from the Baltic, while the stone is extracted from quarries hundreds of miles from the spot where it is employed. Painters have ceased to grind their own pigments, and the oils and varnishes used are prepared by a different set of artisans from those who apply them. Dyers also now derive the materials of their trade from lands as far apart as India and America. This was certainly not so, or but to a limited extent, when Britain was a province of the Roman empire. Then, the neighbouring forest, the nearest quarry or brickfield, supplied the building material required, and where linen was woven, or wool dyed, in the near vicinity or at no great distance, the flax was grown or the plants cultivated from which the dye stuffs were obtained. Without entering on a long disquisition, for which this is not the place, on the substances used as dyes in antiquity, we may with reason venture to conjecture that two of the plants, woad (*isatis tinctoria*)[a] and madder (*rubia tinctorum*),[a] from which dyes known in the Roman period were derived, more especially the latter, might have been cultivated in the neighbourhood of the Roman town now Silchester, and that the process by which these plants were made to give up their colouring matter may very well have been completed by the dyers in the workshops of which we are treating. It is not impossible that the querns, two of which were found in Block VI., *Insula* X., and one *in situ* in the area of Block V. of the same *insula*, may have served, together with others discovered in the trenches, to grind up the roots of the madder in order to prepare it for infusion in the vats, and that the leaves of the woad, which require fermentation to render them available for dyeing, may have been heaped up and manipulated in some of the covered sheds of the enclosures.[b]

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[a] Pliny.

[b] It may be of some interest to note here the methods by which the two plants named were, and still are, prepared for the use of dyers.

In the case of woad, the following extract from a work published early in the present century gives an account of the processes by which the raw material is rendered available for the dyers'

It has been noted with respect to the buildings in *Insula* X. that though they belong to one type, consisting of an area and two chambers, there is one exception,

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use: "The plant, after being cut, washed, and partly dried, is carried to a mill, and there ground to a paste, after which it is formed into a mass or heap, and being covered to protect it from rain, is left to undergo a partial fermentation for about a fortnight. The heap is then stirred, well mixed, and formed into balls or cakes, which are exposed to the sun and wind to dry, and thereby obviate the putrefactive process which would otherwise take place. Being afterwards collected in heaps, these balls again ferment, become hot, and emit the odour of ammonia or volatile alkali. . . . . After the heat has continued for some time, these balls fall into a dry powder, and are then sold to the dyer, who now seldom employs them without a mixture of indigo, which last the woad helps to deoxygenate and render soluble. Formerly, however, this preparation, fermented by well-known means, was employed *alone*, though it was incapable of giving a deep and bright blue colour, because the tingent matter was in union with too great a proportion of the other constituents of the plant. The colour, however, which it did give was very durable." Edward Bancroft, M.D., *Experimental Researches concerning the Philosophy of Permanent Colours, and the best means of producing them by Dyeing, Calico-Printing, etc.* (London, 1813), i. 166, *note.*

Woad is still cultivated for dyeing purposes both in Lincolnshire and Cambridgeshire, and its preparation, with certain differences, is the same as that described above.

The same writer, describing the plant (*Rubia tinctorum*, Lin.) from which the noted madder dye is obtained, says, "This is properly the Zealand madder, and appears to have been greatly cultivated in that province during more than 300 years; the Emperor Charles the Fifth having encouraged its cultivation by particular privileges conferred on the inhabitants of Zuyderzee for that purpose; and Great Britain alone is supposed for a long time to have paid annually two millions of guilders (nearly 200,000*l.* sterling) for the purchase of Zealand madder; which I believe is never exported otherwise than in a prepared state." *Ibid.* ii. 221-222. He then goes on to explain the manner in which the roots of the plant, which contain the colouring matter, were dried by stove heat and ground into powder for export.

At the present day madder is imported in powder from the south of France.

An extract from another and earlier work, the *Discorsi* on Dioscorides of Matthioli, the Siennese physician and naturalist, will show the cultivation of madder for dyeing purposes in Italy in the sixteenth century. This writer says that the plant was well known in Tuscany everywhere where the dyeing of cloth was practised, and that as the dyers were known to buy every year an infinite quantity of the roots, the country people during the winter dug up these roots and sold an infinite quantity of them in bundles to the dyers. *I discorsi di M. Pietro Matthioli, Sanese, medico cæsareo, etc.—nelle sei libri di Pedacio Dioscoride Anazarbeo della materia medicinale. In Venetia* MDLXVIII. ii. 971.

From these remarks it may be seen that in Italy in the sixteenth century the madder roots were furnished to the dyers unprepared, who must therefore have had to grind them themselves. The fact here stated may show what was probably the practice at a much earlier time.

Pliny, writing concerning the distribution of this plant throughout the Roman empire, says that it was produced in nearly all the provinces in great abundance, and was used for dyeing wool and leather.

Block VI, which, unlike the others, is divided into seven compartments of greatly varying size. It is difficult to assign uses to all these chambers. No. 6 is occupied by one of the best preserved of the circular furnaces, and therefore was used for dyeing, and fragments of querns were found in No. 1. It may be, as suggested by Mr. Hope, that such of the dye stuffs as were prepared on the spot were stored in some of the chambers, together with such others, in smaller quantities, as had been brought from a distance. In the house occupied by the dyers in Pompeii, already referred to, a large recess of considerable capacity, made in the walls of the peristyle, had been filled with shelves, and when the house was excavated the remains of glass vessels which had contained some of the dye stuffs were found in it. We may be permitted to imagine a similar use in one or more of the rooms of this block, and also to suppose that the handmills for grinding the madder had a place in chamber No. 1. But this is of course matter for conjecture.

Scouring and bleaching are connected with dyeing, and these processes must also have been practised in the *insulæ* under consideration. This implies that a greater number of furnaces must have formerly been in existence than we have found. Perhaps the flues in the blocks may be the remains of the heating apparatus for the requisite boilers. The wide space of open ground in the *insulæ*, together with the slope of the mound lining the city wall on this side, would have afforded ample room for bleaching, and if the process of sulphuring was also employed, *i.e.* whitening cloth or wool by submitting it to the fumes of burning sulphur, some of the detached chambers in all these *insulæ* would have admirably served this purpose. But this practice possibly belongs rather to fulling than dyeing.[a]

The water supply we have found seems scarcely sufficient for carrying on the various processes named. Still it must always be remembered that the trenches, close as they are to each other, cannot clear the entire surface of the ground examined, and therefore more wells and water pits, as well as furnaces, may yet remain beneath the surface of the soil. The plough also may have carried away the remains of many of these last.

Some further remarks may be added as to the date of the remains examined last year.

We have seen that the dyers in Pompeii established themselves in a dilapidated mansion in the street of Stabia, and converted it to their own uses. Similar cases, with artisans practising other trades, were not uncommon in the Campanian city, and something of the same kind may have happened here.

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[a] We are indebted to our Fellow Mr. William Morris for valuable hints as to various processes of dyeing, and also for the opportunity obligingly afforded us by him of seeing some of those processes in operation.

It is scarcely to be supposed that the dyers maintained their workshops unchanged in form and arrangement for over three centuries in the main street of *Calleva*. It is far more likely that they set up their works upon ground which had become vacant by the destruction of houses originally built upon the main street. These houses may have been few in number, with a considerable extent of open land behind them. One very slight trace of early structures is to be found in Block III., *Insula* XI., and the irregular spacing of the blocks may have resulted in some way from the former existence of earlier buildings. The flues found in the blocks had a great likeness to the ducts of a certain form of hypocaust in which the channels were at right angles to each other, and this likeness inclined me in the first instance to consider them as the partial remains of the hypocausts of the earliest houses in this quarter of the town, retained and converted to the dyers' uses.

Mr. Hope, however, who noted them very carefully in making the plans now before us, is of a different opinion, as is Mr. Jones, who had every opportunity of closely examining them day by day in the course of excavation. They both agree in considering these flues the remains of stoves or furnaces, specially constructed by the dyers for some of the processes of their trade, and not adaptations of earlier remains, and in all probability they have come to the correct conclusion.

But although the remains just mentioned may have nothing to do with the earlier houses, there are two facts which point to the presence of change in this quarter. The first is the deposit of treasure turned up in *Insula* XI. It seems to me inconceivable that so large a deposit of coin should have been made in close proximity to busy workshops, and the constant stir and movement which their existence implies. Treasure is more likely to be buried near a house, within its inclosure; in any case where it can be easily watched and resorted to without observation. Let us suppose, therefore, that the pot full of silver *denarii* discovered in *Insula* XI. was buried near a dwelling. If we take the date of this deposit to be somewhat later than that of the latest coin contained in it, a coin in good condition of the earlier years of Septimius Severus, we arrive at an approximate date at which some great change may have taken place in this quarter of the town, possibly the abandonment or destruction of domestic buildings on or near the main street. After such destruction, perhaps even after the lapse of many years, the dyers may likely enough have settled on the deserted land.

Secondly, it is quite clear that there was at some period a re-construction of the houses and other buildings in *Insula* IX. Not only do we find these buildings differently placed from those in the other *insulæ,* but we have discovered, in one of them at least, architectural fragments from earlier edifices used up again.

Changes, even considerable in character, must have occurred during the long period during which the city was in existence, and it is rather a matter of wonder that traces of such changes are not oftener detected. In the centuries covered by the Roman occupation much must have happened in this town in the way of destruction and re-construction, even in times when the current of life and the march of events were far less hurried than in our own day.

One word more. Putting out of consideration the indications of the potters' trade exhibited by the extensive remains discovered by the Medway and in the valley of the Nen, it may be said without fear of contradiction that the traces of handicrafts practised in the Roman period in Britain are few and far between. In consequence, the relics of the industry occurring over a large area of the Roman town at Silchester are of much interest and importance, the more so that they are the first remains on a considerable scale yet found in this country of the art of the dyer.

From the character of the buildings described, and the use to which the quarter of the town in which they occur was put, the objects found in and about them do not, perhaps, quite equal those discovered in other parts of the site. There are, nevertheless, several which deserve special notice.

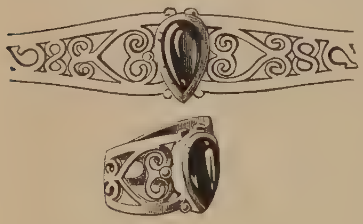

Fig. 5.
Gold ring found near the west gate. $\frac{1}{1}$.

First should be mentioned a small ring of gold (fig. 5), of late Roman date, which was found, in a flattened condition, in clearing the inner face of the city wall near the west gate. It is $\frac{9}{16}$ inch in diameter, and consists of a band of coarse filagree work, joined to a central bezel containing a pear-shaped carbuncle. The band is $\frac{1}{4}$ inch in width at its narrowest part, gradually increasing to $\frac{7}{16}$ inch where it joins the bezel.[a]

Besides the ring there was turned up elsewhere in the excavations the stone of another ring. It is of red jasper, $\frac{5}{8}$ inch long by $\frac{1}{2}$ inch wide, rudely engraved with an intaglio representing a youthful figure standing upright and facing to the left. In the left hand he holds what may be fruit, and in the right a branch with a bunch of grapes. Behind the figure is a tree. The figure is nude, with the exception of some drapery falling in straight folds from the shoulder, and may possibly represent Bacchus or the Genius of the Vine. Several engraved gems and intaglios have been found at Silchester, but they are seldom of much interest in subject or execution. As, however, their rudeness of execution is probably due to native workmanship, their discovery is always welcome.

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[a] A similar stone to that in the ring, but of larger size and unset, was found during the excavations of 1893.

The hoard of silver coins found in *Insula* XI. has already been mentioned. It may, however, be noted that our trenches yielded as many as eighteen other coins[a] in this metal, including a medieval one[b] of king John, with the name of his son Henry.

Of the bronze coins the large proportion turned up were those of the early Empire, a fact which deserves notice. Unfortunately, as is generally the case, they were much worn.

Passing on to other objects in bronze, the most important in point of size is an arm purse. It was found in a pit in *Insula* XI. It appears to have been wrought with great skill out of a thin narrow plate or strip of bronze, the two ends of which were brought together and rivetted to form the ring through which the arm was passed. The boat-shaped body of the purse is worked into seven flattened lobes, and the opening that fitted against the arm is $2\frac{1}{2}$ inches long and $1\frac{3}{4}$ inch wide. The flat ring that passed round the arm is an oval measuring 4 inches by 3 inches, with a general breadth of $\frac{7}{8}$ inch. There are no traces of a lid or lining to the purse, but in the bottom of it is a small hole.

Objects of this class are so rare that only five examples are recorded as having hitherto been found in Britain. One discovered at the Roman station of *Amboglanna*, at Birdoswald, in Northumberland, in 1820, and another in 1849, at Farndale, Yorkshire, are engraved in the *Archæological Journal.*[c] A third, containing gold and silver coins ranging from Tiberius to Trajan, was discovered at Thorngrafton, Northumberland, in 1837.[d] A fourth, from Colchester, is preserved, together with the Farndale example, in the British Museum, and a fifth, also from Colchester, is in the National Museum of Antiquities at Edinburgh.[a]

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[a] Of Faustina, Julia Domna, Marcus Aurelius, Caracalla, Macrinus, Elagabalus, Maximinus, Gordian III., Valerianus, Postumus, Honorius.

[b] Only one other medieval coin, a silver penny of Edward I. now in the Reading Museum, is recorded to have been found at Silchester.

[c] xvi. 84, and viii. 89.

[d] Rev. J. Collingwood Bruce, *The Roman Wall*, 3rd edition (London, 1867), 419, and *Archæologia Æliana*, iii. 269, where the purse is figured.

The next object is of pierced and, apparently, cast work, and has evidently formed part of a hinge. It is $2\frac{3}{4}$ inches wide and $4\frac{11}{16}$ inches long, with straight sides, but the lower end is obtusely pointed. The design shows a central stem, with twisted cross-bar towards the bottom, with symmetrically disposed scroll-work, etc. of considerable complexity on either side. The character of these scrolls, with their double endings, is somewhat late-Celtic, but the Roman influence is seen in the straight fillets that form the border on each side, and have the appearance of being imitated from the well-known bead and reed moulding. On the whole the design is remarkably good. The plate itself is only $\frac{1}{10}$ inch thick, and has at the back four bronze studs, with rivets for attaching it to something. The position of the rivets shows that the material, whatever it was, to which the hinge was fastened, was $\frac{1}{8}$ inch thick. No traces of this material remain, and it is therefore not easy to suggest the precise use to which this ornament may have been put. It may have been part of a belt or the hinge of a casket or coffer.

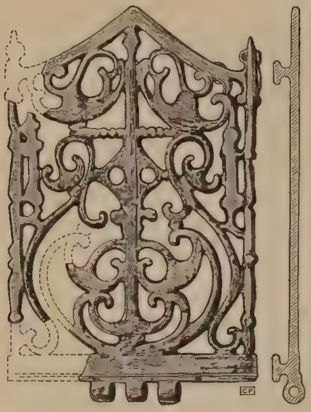

Fig. 6. Bronze hinge of pierced work found in *Insula* XI. ($\frac{1}{2}$ linear.)

A charming little fragment of enamelled work must next be mentioned. It is a thin plate of bronze, now $1\frac{3}{4}$ inch long, but originally longer, and widens out from $\frac{7}{8}$ inch at the broken end to $1\frac{5}{16}$ inch at the other end, where it is perfect. It is slightly convex on the front, but flat on the back, and is $\frac{1}{16}$ inch thick in the centre. The sides, which are straight, are turned up for a width of about $\frac{1}{16}$ inch at an angle of 60°, and have evidently been rivetted to a hexagonal stand or base of some kind. The ornamentation consists of scroll-work of *cloisonné* enamel with central stem, with a groundwork of blue and scrolls filled in with green. Here again, as in the bronze hinge previously described, the design is very late-Celtic in character, though of the Roman period.

A small bronze bell, an object of some rarity on the site, may also be noted.

[a] FU. 1. *Catalogue of the National Museum of Antiquities of Scotland*, Edinburgh, 1892, p. 224.

It is $1\frac{5}{8}$ inch high, with loop for suspension, and at the mouth is a parallelogram $1\frac{9}{16}$ inch long by 1 inch wide. The sides taper upwards in a rather graceful curve. The bell still retains parts of its clapper, which is of iron and rusted to one of the sides.

Among the miscellaneous objects in metal turned up were sundry brooches, buckles, rings (two with imitation jewels of glass), pins of various sizes and patterns, needles, *ligulæ* (one ornamented with a spiral thread of silver), keys, a perfect and a broken scale-pan, and two pieces of a bronze scale-beam with the divisions marked by silver studs. The handle of a pewter or white-metal vase was also found, terminating in a well-modelled lion's head. The objects in bone and glass call for no special remark.

I cannot conclude the record of the more notable finds of this year without a mention of some remarkable pieces of pottery forming parts of two vases of precisely similar design and probably cast from the same moulds. I have already referred to a class of pottery of the rudest description as being the product of native workers, uninfluenced by Roman methods; the pottery now in question is a specimen of the manner in which native workers endeavoured to copy the admired work of their Roman masters.

Everyone is acquainted with what we may call pseudo-Samian ware, but possibly it is not generally known that there is a ware found at Silchester, though not in large quantities, which in colour endeavours to vie with it, but unsuccessfully. The red is of a much more orange hue, and is easily washed off, while the glaze of the pseudo-Samian ware is permanent. On the all-important matter of the paste of which the vases are composed, there can be no question of confounding one with the other. The close-grained substance of the pseudo-Samian cannot be mistaken for the often ill-burnt and in many cases buff-coloured stringy paste of the native ware. The ware is often plain and also often ornamented; the ornamentation consisting principally of indented daisy-like flowers variously arranged, in lines, in groups, and sometimes linked together by indented lines. In some examples bands of indented diaper have friezes between them decorated with slip scrolls similar to those of the Durobrivian ware, but these are not common. As yet, however, with one small exception, only the classes of ornamentation just mentioned have been found, but last season the fragments above described were dug up, and they show the first attempt that has come to our notice at Silchester on any appreciable scale of a direct imitation, not only of colour but of form and design, of figured pseudo-Samian vases of an early type. The subject might be pursued much farther and with interesting results, but it would involve an investigation taking up more time than can be given to it on this occasion.

The accompanying plan (Fig. 7) shows the progress made in the excavation of the site.

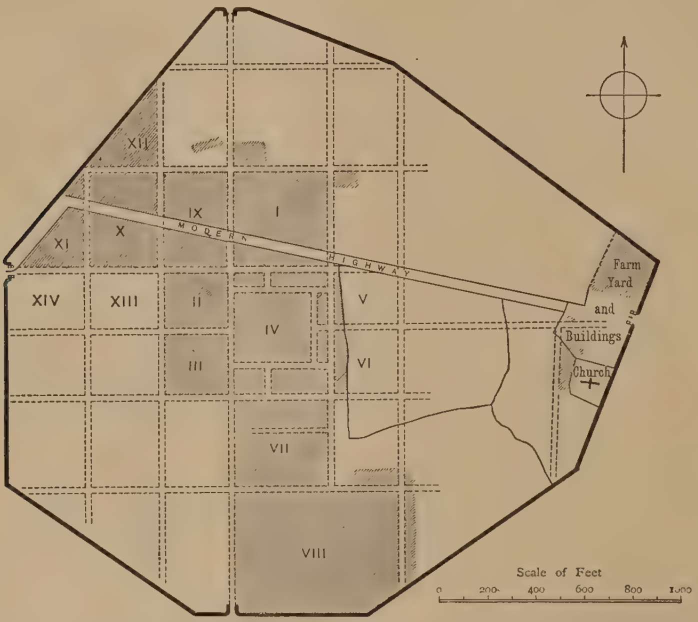

Fig. 7. Block-plan of Silchester, showing portions already excavated up to October, 1894.

APPENDIX I.

On a hoard of Roman Coins found at Silchester.

By Herbert A. Grueber, *Esq., F.S.A.*

Read March 28, 1895.

The find of Roman coins which took place at Silchester in July, 1894, consists entirely of silver denarii ranging in date from the time of Marc Antony to Septimius Severus. They numbered in all 253, and the following is a summary of the contents of the hoard:

Marc Antony (Legionary Coins)	9	Faustina Senior	16
Nero	4	Marcus Aurelius	23
Galba	1	Faustina Junior	10
Vitellius	4	Marcus Aurelius and Lucius Verus	1
Vespasian	38	Lucius Verus	3
Titus	9	Lucilla	3
Domitian	7	Commodus	13
Trajan	27	Crispina	1
Hadrian	46	Clodius Albinus	1
Sabina	4	Septimius Severus	1
Antoninus Pius	32		
			253

From the above list it will be seen that the coins are not equally distributed over the period which they cover. The earliest pieces are those struck by Marc Antony, bearing his name, and those of Legions II. and XII. These legions were with him during his residence at Alexandria B.C. 39-31, at which place the coins are supposed to have been struck. Of these legionary coins there exists a continuous series for Legion I. to Legion XXIX. So far as the condition of the coins in this hoard will allow, we can only identify those of Legions II. and XII. Following these we have a blank of about 85 years, no coins being present which were issued between B.C. 31 and the time of Nero A.D. 54, and we may put it even a little later, viz. A.D. 60, as the three coins of that emperor in the hoard cannot be placed at an earlier date. There are thus none of the later coins of the Republic for B.C. 31-27; nor any of Augustus and his successors down to Claudius I. inclusive.[a] From the reign of Nero all the emperors are represented on the coins to that of Severus, and some of their empresses, with the exception of Otho, Nerva, Pertinax, Didianus Julianus, and Pescennius Niger. Coins of this last emperor are never found so far west as Gaul and Britain, as they were struck in the East; and the short reigns of the other emperors not represented would account for the absence of these coins. The latest coin in the find is that of Septimius Severus, which we are able to assign to A.D. 193, the first year of his reign. It no doubt belongs to the first issue of that emperor. It would have been interesting if these coins could have been associated with the actual arrival of Severus in Britain; but if that had been so we should most probably have had some of his later coins, as he did not land here till about the end of A.D. 208. These data give us almost the exact time of the burial of the hoard, viz. as near as possible A.D. 200.

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[a] For the absence of these coins in the hoard see Appendix II., page 489

The coins themselves are strong evidence of the length of time they had been in circulation. The earliest are much worn, so much so that a minute identification of those of Marc Antony is not in every case possible; but gradually as we come down to later times their condition improves so much that it is evident that the latest pieces could only have been in circulation for a short period before their burial. By this means we are able to arrive at a fairly actual date for the concealment of the hoard.

For the most part the coins are of well-known types; but there are amongst them some which vary slightly from the descriptions given by Cohen in his *Monnaies Frappées sous l'Empire Romain*, and a few which he has not noticed. The smaller varieties have been noticed in the descriptions of the coins which are appended, it is only necessary therefore to draw attention to those which are *unpublished*, and to add some remarks on one or two types of exceptional interest.

Nos. 28-32, with Pax seated to left, is a new type with the inscription COS . ITER . TR . POT. There are coins published with a similar inscription, but bearing representations of Mars and Neptune No. 33 is similar, but Pax is standing.

No. 36. Quinarii or half-denarii of this type are known, but till now no denarius has been met with. This particular coin is of interest, as it records the conquest of Judæa and the taking of Jerusalem.

No. 99. The occurrence of this coin, which is a denarius struck for currency in Lycia, is of interest, as it shows that it passed in currency with the ordinary imperial denarius, being of the same weight. The issue of this colonial denarius was limited to a few provinces and cities only, amongst which were Crete, Bithynia, and Caesarea in Cappadocia.

No. 114. Cohen had never seen a specimen of this coin, but describes one which was said to be in the *Wetzl* collection, at the same time querying his description, which, however, as proved by the coin in the hoard, is quite accurate.

No. 174 is a new type representing Artemis *Kriophoros* holding a kid on her right hand, whilst with her left she touches a goat springing up to her. This type is an unusual one, and does not appear to occur on any other denarii. The nearest approach to it is to be found on a medallion of Antoninus Pius, which shows Artemis holding a kid on her right hand, her left resting on a sceptre.

No. 231. In this coin we have one of those interesting "restorations" of denarii struck during the Republic. These "restorations" were issued by Trajan, Marcus Aurelius, and Lucius Verus, the last two jointly. The reason for their issue is not at first sight apparent, since their types do not for the most part show any connection with the history of the emperor by whom they were struck, and besides that the original coin had most probably long passed out of currency. Under Trajan these "restorations" are fairly numerous; but the only one struck by Marcus Aurelius and Lucius Verus is that of which a specimen occurs in the hoard. As will be seen from its description it is of the same type as the legionary coins struck by Marc Antony (see Nos. 1—4). For the issue of this coin there may, however, be a reason, as we know from Dio Cassius that the VIth Legion was not disbanded till after the reign of Commodus. The coin therefore may have been re-struck in honour of that legion. This coin is of special rarity, and it is interesting that one should occur in this hoard.

The last coin to be noticed is No. 247, which has on the obverse the bust and name of Commodus, but the reverse type is from a die of Marcus Aurelius. This is proved by the inscription on it. Commodus had received the "Tribunitian Power" seventeen times only, in A.D. 192, when he also entered on his seventh consulship. On the other hand Marcus Aurelius only received the consulship three times, but was granted the "Tribunitian Power" for the thirty-first time in A.D. 177. As regards the "Imperatorship," both emperors received it eight times, Aurelius in A.D. 177, and Commodus in A.D. 192, so that in this respect the titles of the two emperors correspond. What then is this coin? It is either a forgery of the time, or as the bust of Commodus is youthful it may be an instance of an emperor using the old dies of his predecessors, which was of very common occurrence in later times, but of which no instance is known in Roman coins. The first view is perhaps the more probable, seeing that the coin is of coarse work, and some of the letters are turned upside down. It has also the appearance of having been struck from a cast mould.

From the above remarks it will be seen that this find is interesting from a numismatic point of view as well as historically, for besides enabling us to fix the date of the buildings which surrounded it, it has also added somewhat to our numismatic knowledge by giving several new types. It rarely happens that so many coins of this class and period are found together in this country; on this account a complete list has been appended. In the description of the coins references have been given to Cohen's work entitled *Monnaies Frappées sous l'Empire Romain*, 2nd ed.

DESCRIPTION OF THE COINS.

REPUBLICAN DENARII.

MARC ANTONY, B.C. 39—31.

1—2. *Obv.* ANT . AVG . IIIVIR . R . P . C. Galley to left.
Rev. LEG . II. Three standards, centre one surmounted by eagle. *Cohen*, I. 27.

3—4. Similar: but inscription on *rev.* LEG . XII. *Cohen*, I. 41.

5—9. Similar to Nos. 1—2: but the inscriptions on the *rev.* are illegible, the coins being much worn.

IMPERIAL DENARII.

Nero, A.D. 54—68.

10. *Obv.* NE[RO CAESAR] AV[GVSTVS]. Bust of Nero to right, laureate.
Rev. IV[PPITER CVSTOS]. Jupiter seated to left, holding thunderbolt and sceptre. *Cohen*, I. 118. *Worn.*

11—13. *Obv.* NERO CAESAR AVGVSTVS. Bust of Nero to right, laureate.
Rev. SALVS. Salus seated to left, holding patera. *Cohen*, I. 314. *Worn.*

Galba, A.D. 68—69.

14. *Obv.* IMP . SER . GALB[A CAESAR AVG]. Head of Galba to right, laureate.
Rev. DIVA AVGVSTA. Livia standing to left, holding patera and sceptre. *Cohen*, I. 55. *Rubbed.*

Vitellius, A.D. 69.

15—16. *Obv.* A . VITELLIVS GERMAN . IMP . TR . P. Head of Vitellius to right, laureate.
Rev. CONCORDIA PR. Concordia seated to left, holding patera and cornucopiæ. *Cohen*, I. 20.

17—18. *Obv.* A . VITELLIVS GERMANICVS IMP. Head of Vitellius to right, bare.
Rev. Victory seated to left, holding patera and palm. *Cohen*, I. 21.

Vespasian, A.D. 69—79.

19. *Obv.* CAESAR VESPASIANVS AVG. Bust of Vespasian to right, laureate.
Rev. ANNONA AVG. Annona seated to left, holding her robe in right hand. *Cohen*, I. 30.

20. *Obv.* IMP . CAES . VESP . AVG . P . M. Bust of Vespasian to right, laureate.
Rev. AVGVR PON . MAX. Sacrificial implements. *Cohen*, I. 42.

21—22. Similar: but legend on *rev.* AVGVR TRI . POT. *Cohen*, I. 43.

23. *Obv.* CAESAR VESPASIANVS AVG. Bust as on No. 20.
Rev. CERES AVGVST. Ceres standing to left, holding ears of corn and torch. *Cohen*, I. 54.

24. *Obv.* IMP . CAES . VESP . AVG . P . M . COS . III. Bust as on No. 20.
Rev. CONCORDIA AVGVSTI. Concordia seated to left, holding patera and cornucopiæ. *Cohen*, I. 74.

25—27. *Obv.* IMP . CAESAR VESPASIANVS . AVG. Bust as on No. 20.
Rev. COS . VIII. Mars standing to left, holding spear and trophy. *Cohen*, I. 125.

28—32. *Obv.* IMP . CAESAR VESPASIANVS AVG. Bust as on No. 20.
Rev. COS . ITER . TR . POT. Pax seated to left, holding branch and cornucopiæ. *Unpublished.*

33. Similar: but on *rev.* Pax standing. *Unpublished.*

34. *Obv.* CAESAR VESPASIANVS AVG. Bust of Vespasian to left, laureate.
Rev. IMP . XIX. Modius with ears of corn. *Cohen*, I. 215.

35—36. *Obv.* IMP . CAESAR VESPASIANVS AVG. Bust as on No. 20.
Rev. IVDAEA. Judæa seated at foot of trophy. *Cohen*, I. 225.

37. *Obv.* IMP . CAES . VESP . AVG . P . M. Bust as on No. 20.
Rev. PON . MAX. Vesta seated to left, holding simpulum. *Cohen*, I. 358.

38. *Obv.* IMP . CAESAR VESP . AVG. Bust as on No. 20.
Rev. PON . MAX . TR P . COS . V. Caduceus, winged. *Cf. Cohen*, I. 361.
A variety of *Cohen* reading VESP for VESPAS.

39. *Obv.* IMP . CAESAR VESPASIANVS AVG. Bust as on No. 20.
Rev. PON . MAX . . . . Vespasian seated to right, holding sceptre and branch. *Cf. Cohen*, I. 363.

40—44. *Obv.* IMP . CAESAR VESPASIANVS AVG. Bust as on No. 20.
Rev. PON . MAX . TR . P . COS . VI. Pax seated to left, holding branch. *Cohen*, I. 366.

45—47. *Obv.* IMP . CAES . VESP . AVG . CENS. Bust as on No. 20.
Rev. PONTIF . MAXIM. Vespasian seated to right, holding sceptre and branch. *Cohen*, I. 386.

48. *Obv.* IMP . CAESAR VESP . AVG. Bust as on No. 20.
Rev. PONTIF . MAXIM. Caduceus, winged. *Cohen*, I. 390.

49. *Obv.* IMP . CAES . VESP . AVG . CEN. Bust as on No. 20.
Rev. SALVS AVG. Salus seated to left, holding patera. *Cohen*, I. 431.

50. *Obv.* DIVVS AVGVSTVS VESPASIANVS. Bust as on No. 20.
Rev. S . C. on shield, supported by two capricorns; below, globe. *Cohen*, I. 497.

51—52. *Obv.* IMP . CAES . VESP . AVG. Bust as on No. 20.
Rev. TRI . POT. Vesta seated to left, holding simpulum. *Cohen*, I. 561.

53. Similar: but *obv.* legend IMP . CAES . VESPA . AVG . P . M . COS . IIII. *Cohen*, I. 563.

54—55. *Obv.* IMP . CAES . VESP . AVG . P . M . COS . III. Bust as on No. 20.
Rev. VESTA. Vesta standing to left, holding simpulum and sceptre. *Cohen*, I. 572.

56. *Obv.* IMP . CAES . VESP . AVG . P . M . COS . IIII. Bust as on No. 20.
Rev. VICTORIA AVGVSTI. Victory to right crowning standard. *Unpublished.*

Titus, A.D. 79—81.

57. *Obv.* T . CAESAR VESPASIANVS. Bust to right, laureate.
Rev. ANNONA AVG. Annona seated to left. *Cohen*, I. 17.

58. *Obv.* T . CAESAR IMP . VESPASIANVS. Bust to right as the preceding.
Rev. COS . V. Eagle standing on cippus. *Cohen*, I. 60.

59. *Obv.* T . CAES . IMP . VESP . PONT . TR . POT. Bust as on No. 57.
Rev. [NEP.]RED. Neptune standing to left, holding acrostolium and sceptre. *Cohen*, I. 120.

60. *Obv.* T . CAESAR IMP . VESPASIANVS. Bust as on No. 57.
Rev. TR . POT . VIII . COS . VII. Quadriga to left. *Cohen*, I. 335.

61—62. *Obv.* IMP . TITVS CAES . VESPASIAN . AVG . P . M. Bust to left, laureate.
Rev. TR . P . IX . IMP . XV . COS VIII . P . P. Trophy at the base of which are seated a male and a female captive. *Cohen*, I. 305.

63. *Obv.* Similar: but bust to right.
Rev Similar: but type, Throne. *Cohen*, I. 311.

64. *Obv.* Same as No 61.
Rev. Same as No 61: but type, Dolphin on tripod. *Cohen*, I. 320.

65. *Obv.* Same as No. 63.
Rev. Same as No. 61: but type, Curule chair surmounted by wreath. *Cohen*, I. 317.

DOMITIAN, A.D. 81—96.

66. *Obv.* CAESAR AVG . F . DOMITIANVS. Bust of Domitian to right, laureate.
Rev. COS . V. Horseman to right. *Cohen*, I. 49.

67. *Obv.* IMP . CAES . DOMIT . AVG . GERM . P . M . TR . P . VIII. Bust as on the preceding.
Rev. IMP . XIX . COS . XIIII . CENS . P . P . P. Pallas to left, holding spear. *Cohen*, I. 250.

68. *Obv.* Similar: but legend ending TR . P . X.
Rev. Similar: but legend IMP . XXI . COS . XV . CENS . P . P . P. *Cohen*, I. 263.

69. *Obv.* Similar: but legend ending TR . P . XIII.
Rev. IMP . XXII . COS . XVI . CENS . P . P . P. Pallas to right, holding spear and shield. *Cohen*, I. 288.

70. *Obv.* CAES . AVG . F . DOMIT . COS . III. Bust as on No. 66.
Rev. PRINCEPS IVVENTVT. Spes to left, holding flower. *Cohen*, I. 374.

71. *Obv.* CAESAR AVG . F . DOMITIANVS COS . VI. Bust as on No. 66.
Rev. PRINCEPS IVVENTVTIS. Vesta seated to left, holding palladium and spear. *Cohen*, I. 377.

72. *Obv.* Same.
Rev. PRINCEPS IVVENTVTIS. Two hands clasping standard on prow. *Cohen*, I. 393.

TRAJAN, A.D. 98—117.

73. *Obv.* IMP . TRAIANO AVG . GER . DAC . P . M . TR . P . COS . VI . P . P. Bust of Trajan to right, laureate, and slightly draped.
Rev. ALIM . ITAL . —S . P . Q . R . OPTIMO PRINCIPI. Abundantia standing, holding ears of corn and cornucopiæ; at her side a child. *Cohen*, II. 9.

74 -75. *Obv.* IMP . TRAIANO AVG . GER . DAC . P . M . TR . P. Bust as on the preceding.
Rev. COS . V . P . P . S . P . Q . R . OPTIMO . PRINC. Victory to left, holding wreath and palm. *Cohen*, II. 74.

76—78. *Obv.* IMP . TRAIANO AVG . GER . DAC . P . M . TR . P. Bust as on No. 73.
Rev. COS. V . P . P . S . P . Q . R . OPTIMO PRINC. Aequitas standing to left, holding scales and cornucopiæ. *Cohen*, II. 85.

79. Similar: but type on reverse, Aequitas seated. *Cohen*, II. 86.

80. Similar: but type on reverse, Fortuna holding rudder and cornucopiæ. *Cohen*, II. 87.

81. Similar: but type on reverse, Trophy. *Cohen*, II. 100.

82. *Obv.* Same as No. 76.
Rev. DAC . CAP . — COS . V . P . P . S . P . Q . R . OPTIMO PRINC. Dacia seated to left on arms. *Cohen*, II. 120.

83. *Obv.* Same as No. 76.
Rev. DANVVIVS—COS . V . P . P . S . P . Q . R . OPTIMO PRINC. The Danube reclining to left. *Cohen*, II. 136.

84. *Obv.* IMP . TRAIANVS AVG . GER . DAC . P . M . TR . P . COS . VI . P . P. Bust as on No. 73.
Rev. DIVVS PATER TRAIAN. Trajan's father seated to left holding patera and sceptre. *Cohen*, II. 140.

85. *Obv.* IMP . CAES . NERVA TRAIAN . AVG . GERM. Bust as on No. 73.
Rev. P . M . TR . P . COS . III . P . P. Hercules standing facing on altar, holding club and lion's skin. *Cohen*, II. 215.

86. Similar: but legend on reverse, P . M . TR . P . COS . IIII . P . P. *Cohen*, II. 231.

87. Similar: but type of reverse, Victory standing towards left, holding wreath and palm. *Cohen*, II. 240.

88—89. Similar: but Victory to right. *Cohen*, II. 241.

90. *Obv.* IMP . NERVA TRAIANVS AVG . GER . DACICVS. Bust as on No. 73.
Rev. P . M . TR . P . COS . V . P . P. Mars walking to right, carrying spear and trophy. *Cohen*, II. 255.

91. *Obv.* IMP . CAES . NER . TRAIANO OPTIMO AVG . GER . DAC. Bust of Trajan to right, laureate and draped.
Rev. P . M . TR . P . COS . VI . P . P . S . P . Q . R. Virtus standing to right, his foot on helmet, holding spear and sword. *Cohen*, II. 274.

92. Similar: but type of reverse, Pax standing to left, holding caduceus and cornucopiæ. *Cohen*, II. 278.

93. *Obv.* IMP . TRAIANO AVG . GER . DAC . P . M . TR . P . COS . V . P . P. Bust as on No. 73.
Rev. S . P . Q . R . OPTIMO PRINCIPI. Ceres standing to left, holding ears of corn and patera. *Cf. Cohen*, II. 316. On coins described by Cohen, Ceres always holds ears of corn and a *torch*.

94. Similar: but type of reverse, Virtus standing to right, her foot on helmet, holding spear and sword. *Cohen*, II. 401.

95. Similar: but type of reverse, Abundantia standing to left, holding ears of corn and cornucopiæ; before her, modius; behind her, prow of vessel. *Cohen*, II. 467.

96. Similar: but type of reverse, three standards. *Cohen*, II. 577.

97—98. *Obv.* IMP . TRAIANO AVG . GER . DAC . P . M . TR . P. Bust as on No. 73.
Rev. VESTA — COS . V . P . P . S . P . Q . R . OPTIMO PRINCI. Vesta seated to left, holding palladium and sceptre. *Cohen,* II. 644.

99. *Obv.* ΑΥΤ . ΚΑΙC . ΝΕΡ . ΤΡΑΙΑΝΟC CΕΒ . ΓΕΡΜ. Bust to right, laureate.
Rev. ΔΗΜ . ΕΞ . ΥΠΑΤ . Β. Two lyres side by side; surmounted by owl.
Struck for Lycia.

HADRIAN, A.D 117—138.

100. *Obv.* IMP . CAES . TRAIAN . HADRIANO OPT . AVG . GER . DAC. Bust of Hadrian to right, laureate, slightly draped.

Rev. ADOPTIO— PATHIC . DIVA TRAIAN . AVG . F . P . M . TR . P. COS . P . P. Trajan and Hadrian holding right hands. *Cohen,* II. 3.

101. *Obv.* IMP . CAESAR TRAIAN . HADRIANVS AVG. Bust as on the preceding.
Rev. AET . AVG . — P . M . TR . P . COS . II. Aeternitas standing to left, holding heads of the Sun and Moon. *Cohen,* II. 128.

102. *Obv.* IMP . CAES . TRAIAN . HADRIANO AVG . DIVI[TRA]. Bust as on No. 100.
Rev. CONCORD . — PARTH . F . DIVI NER . NEP . P . M. TR . P . COS. Concordia seated to left, holding patera; cornucopiæ below her seat. *Cf. Cohen,* II. 248.
This is a variety of the coin described in *Cohen,* on which a figure of Spes is seen behind Concordia.

103—105. *Obv.* Same as No. 101.
Rev. CONCORD . — P . M . TR . P . COS . II. Concordia seated as on the preceding. *Cohen,* II. 253.

106. *Obv.* HADRIANVS AVGVSTVS. Bust to right, laureate, slightly draped.
Rev. COS . III. Neptune standing to left, his foot on prow, holding acrostolium and trident. *Cohen,* II. 309.

107—108. Similar: but type of reverse, Diana standing to right, holding arrow and bow. *Cohen,* II. 315.

109. Similar: but type of reverse, Virtus standing to right, her foot on helmet, holding spear and sword. *Cohen,* II. 353.

110. Similar: but type of reverse, Libertas standing to left, holding cap and sceptre. *Cohen,* II. 374.

111—112. *Obv.* HADRIANVS AVGVSTVS P . P. Head of Hadrian to right, laureate.
Rev. COS . III. Abundantia seated to left, holding poppy and cornucopiæ. *Cohen,* II. 350.

113. Similar: but type of reverse, Spes walking to left. *Cf. Cohen,* II. 390.
The coin described by Cohen is without P . P . (Pater Patriæ) at the end of the *obv.* legend.

114. *Obv.* Same as No. 106.
Rev. COS . III. Female figure, standing to left, her foot on cuirass, holding flower and cornucopiæ. *Cohen,* II. 399.

115. Similar: but type of reverse, Seven stars above crescent. *Cohen,* II. 466.

116—117. *Obv.* HADRIANVS AVG . COS . III . P . P. Head to right, laureate.
Rev. FIDES PVBLICA. Fides standing to right, holding ears of corn and patera with fruit. *Cohen*, II. 715.

118. *Obv.* HADRIANVS AVGVSTVS P . P. Bust of Hadrian to right, laureate and draped.
Rev. INDVLGENTIA AVG . — COS . III. Indulgentia seated to left, holding sceptre. *Cf. Cohen*, II. 845.
A variety, the bust of the Emperor being draped.

119—121. *Obv.* IMP . CAESAR TRAIAN . HADRIANVS AVG. Bust to right, laureate, slightly draped.
Rev. IVSTITIA . — P . M . TR . P . COS . II. Justitia, seated to left, holding patera and sceptre. *Cohen*, II. 876.

122. *Obv.* Same as No. 118.
Rev. LIBERALITAS AVG . — COS . III. Liberalitas standing to right, emptying cornucopiæ. *Cf. Cohen*, II. 917.
A variety, the bust of the Emperor being draped and COS . III. being in the exergue.

123. *Obv.* Same as No. 119.
Rev. LIB . PVB . — P . M . TR . P . COS . III. Liberalitas seated to left, holding branch and sceptre. *Cohen*, II. 902.

124. *Obv.* HADRIANVS AVG . COS . III . P . P . Head to right.
Rev. MONETA AVG. Moneta standing to left, holding scales and cornucopiæ. *Cohen*, II. 963.

125—126. *Obv.* IMP . CAES . TRAIAN . HADRIANO AVG . DIVI TRA. Bust to right, laureate, slightly draped.
Rev. PAX . — PARTH . F . DIVI NER . NEP . P . M . TR . P . COS. Pax standing to left, holding branch and cornucopiæ. *Cohen*, II. 104.

127. *Obv.* IMP . CAESAR TRAIAN . HADRIANVS AVG. Bust to right, laureate, draped and wearing cuirass.
Rev. PAX . — P . M . TR . P . [COS . II.] Pax, as on the preceding. *Cohen*, II. 1015.

128. *Obv.* HADRIANVS AVG . COS . III . P . P. Head to right, laureate.
Rev. PIETAS AVG. Pietas seated to left, holding patera and sceptre. *Cohen*, II. 1037.

129. *Obv.* IMP . CAESAR TRAIAN . HADRIANVS AVG. Bust to right, laureate, slightly draped.
Rev. P . M . TR . P . COS . III. Mars walking to right, carrying spear and trophy. *Cohen*, II. 1073.

130—131. *Obv.* IMP . CAESAR TRAIAN . HADRIANVS AVG. Head to right, laureate.
Rev. P . M . TR . P . COS . III. Victory walking to right and bearing trophy. *Cohen*, II. 1131.

132—133. Similar: but type of reverse, Roma seated to left, holding Victory and spear. *Cohen*, II. 1108.

134. Similar: but type of reverse, Genius standing to left, near an altar, holding patera and cornucopiæ. *Cohen*, II. 1093.

135. *Obv.* HADRIANVS AVG . COS . III . P . P. Head to right, laureate.
Rev. RESTITVTORI HISPANIAE. Emperor raising Hispania kneeling and holding branch. *Cohen*, II. 1260.

136. *Obv.* IMP . CAESAR TRAIAN . HADRIANVS AVG. Head to right, laureate.
Rev. SAL . AVG . — P . M . TR . P . COS . III. Salus seated to left, feeding serpent rising from altar. *Cohen*, II. 1324.

137. Similar: but bust on obverse draped and wearing cuirass. *Cohen*, II. 1327.

138—139. *Obv.* HADRIANVS AVG . COS . III . P . P. Bust to right, slight drapery before bust.
Rev. SALVS AVG. Salus standing to right, feeding serpent rising from altar. *Cohen*, II. 1335.

140. Similar: Laureate head on obverse; and on reverse Salus standing to left, holding patera and sceptre, and sacrificing at altar. *Cohen*, II. 1329.

141. *Obv.* IMP . CAESAR TRAIAN . HADRIANVS AVG. Bust to right, laureate, slightly draped.
Rev. SALVS AVG . — P . M . TR . P . COS . III. Salus seated to left, feeding serpent rising from altar. *Cf. Cohen*, II. 1353.
A variety, the bust being draped.

142. *Obv.* HADRIANVS AVG . COS . III . P . P. Head to right.
Rev. TELLVS STABIL. Female figure standing to left, holding ploughshare and rake. *Cohen*, II. 1425.

143. *Obv.* HADRIANVS AVGVSTVS. Bust to right, draped.
Rev. TRANQVILLITAS AVG . COS . III . P . P. Tranquilitas standing to left, holding sceptre and leaning on column. *Cohen*, II. 1440.

144. *Obv.* Same as No. 142.
Rev. VICTORIA AVG. Victory standing to right, branch in left hand. *Cohen*, II. 1454.

145. *Obv.* Same as No. 142.
Rev. VOTA PVBLICA. The Empress sacrificing at altar. *Cohen*, II. 1481.

SABINA, WIFE OF HADRIAN.

146. *Obv.* SABINA AVGVSTA. Bust of Sabina to right, diademed and draped, hair *en queue.*
Rev. CONCORDIA AVG. Concordia standing to left, holding patera and double cornucopiæ. *Cohen*, II. 3.

147. *Obv.* SABINA AVGVSTA HADRIANI AVG . P . P. Bust as on the preceding.
Rev. CONCORDIA AVG. Concordia seated to left, holding patera and sceptre. *Cohen*, II. 25.

148—149. *Obv.* Same as No. 146.
Rev. IVNONI REGINAE. Juno standing to left, holding patera and sceptre. *Cohen*, II. 43.

ANTONINUS PIUS, A.D. 138—161.

150. *Obv.* ANTONINVS AVG . PIVS P . P . TR . P . COS . III. Head of Antoninus to right, laureate.
Rev. AEQVITAS AVG. Aequitas standing to left, holding scales and sceptre. *Cohen*, II. 14.

151. *Obv.* IMP . T . AEL . CAES . HADRI . ANTONINVS. Head to right, bare.
Rev. AVG . PIVS P . M . TR . P . COS . DES . II. Fides standing to right, holding ears of corn and basket of fruit. *Cohen*, II. 79.

152. *Obv.* Similar: but HADR.

Rev. AVG . PIVS . P . M . TR . P . COS . II . P . P. Two right hands joined, holding caduceus. *Cf. Cohen*, II. 100.

A variety, reading HADR for HADRI.

153. *Obv.* ANTONINVS AVG . PIVS P . M . TR . P . COS . III. Head to right, bare.

Rev. CLEMENTINA AVG. Clementia standing to left, holding patera and sceptre. *Cohen*, II. 123.

154. *Obv.* DIVVS ANTONINVS. Head to right, bare.

Rev. CONSECRATIO. Eagle standing on garlanded altar. *Cohen*, II. 155.

155. *Obv.* Similar: bust slightly draped.

Rev. CONSECRATIO. Funeral pyre. *Cf. Cohen*, II. 163.

A variety, the bust being draped.

156. *Obv.* ANTONINVS AVG . PIVS . P . P . TR . P . XVI. Head to right, laureate.

Rev. COS . IIII. Vesta standing to left, holding simpulum and palladium. *Cohen*, II. 197.

157. *Obv.* ANTONINVS AVG . PIVS . P . P. Head to right, laureate.

Rev. COS . IIII. Aequitas standing to left, holding scales and sceptre. *Cohen*, II. 228.

158. *Obv.* ANTONINVS AVG . PIVS . P . P . TR . P . XII. Head to right, laureate.

Rev. COS . IIII. Felicitas standing to left, holding caduceus and cornucopiæ. *Cohen*, II. 252.

159—160. *Obv.* Similar: but TR . P . XVI.

Rev. COS . IIII. Fortuna standing to right, holding rudder and cornucopiæ. *Cohen*, II. 270.

161. *Obv.* Similar: but TR . P . XV.

Rev. COS . IIII. Abundantia standing to left, holding ears of corn and resting left hand on modius placed on forepart of vessel. *Cohen*, II. 288.

162. Similar: but TR . P . XVIII . on obverse. *Cohen*, II. 292.

163. *Obv.* ANTONINVS AVG . PIVS . P . P. Head to right, laureate.

Rev. COS . IIII. Two right hands joined holding caduceus and two ears of corn. *Cohen*, II. 344.

164. *Obv.* DIVVS ANTONINVS. Head to right, bare.

Rev. DIVO PIO. Altar. *Cohen*, II. 357.

165. *Obv.* ANTONINVS AVG . PIVS P . P . TR . P . XXII. Bust to right, laureate.

Rev. FORTVNA OPSEQVIENS (sic) COS . IIII. Fortuna standing to left, holding rudder and cornucopiæ. *Cohen*, II. 390.

166. *Obv.* ANTONINVS AVG . PIVS P . P . COS . III. Head to right, laureate.

Rev. IMPERATOR II. Victory standing to left, holding wreath and palm. *Cohen*, II. 437.

167—169. *Obv.* ANTONINVS AVG . PIVS P . P. Head to right, laureate.

Rev. LIB . IIII.—TR . POT . COS IIII. Liberalitas standing to left, holding tessera and cornucopiæ. *Cohen*, II. 490.

170. *Obv.* IMP . CAES . T . AEL . HADR . ANTONINVS AVG . PIVS . P . P. Head to right, laureate.
Rev. PAX—TR . POT . XIIII . COS . IIII. Pax standing to left, holding branch and sceptre. *Cf. Cohen*, II. 552.
A variety; Pax holding a sceptre, and not, as usual, a cornucopiæ.

171. *Obv.* ANTONINVS AVG . PIVS P . P . TR . P . XXIII. Head to right, laureate.
Rev. PIETATI AVG . COS . IIII. Pietas standing to left between two children, and holding another on each arm. *Cohen*, II. 631.

172. *Obv.* Same.
Rev. SALVTI AVG . COS . IIII. Salus standing to left, feeding serpent rising from altar and holding cornucopiæ. *Cohen*, II. 741.

173. *Obv.* ANTONINVS AVG . PIVS P . P. Head to right, bare.
Rev. TR . P . COS . III. Fortuna standing to left, holding rudder and cornucopiæ. *Cohen*, II. 859.

174. *Obv.* ANTONINVS AVG . PIVS P . P . IMP . II. Head to right, laureate.
Rev. TR . POT . XIX . COS . IIII. Female figure (Artemis) standing to left, holding kid on right hand; her left touching goat which springs up. *Unpublished.*

175. *Obv.* Same.
Rev. TR . POT . XX . COS . IIII. Salus seated to left, feeding serpent which rises from altar. *Cohen*, II. 1023.

176. *Obv.* Same.
Rev. TR . POT . XXI . COS . IIII. Roma seated to left, holding Victory and sword. *Cohen*, II. 1028.

177. *Obv.* ANTONINVS AVG . PIVS P . P. Head to right, laureate.
Rev. TR . POT . COS . IIII. Soldier standing to left, holding spear and sword. *Cohen*, II. 945.

178. *Obv.* ANTONINVS AVG . PIVS P . P . TR . P . XXII. Head to right, laureate.
Rev. VOTA SOL . DEC . II.—COS . IIII. Antoninus standing to left, sacrificing at altar. *Cohen*, II. 1102.

179. *Obv.* Same.
Rev. VOTA SVSCEPTA DEC . III.—COS . IIII. Antoninus sacrificing at altar, &c. as preceding.

180—181. Similar: but legend on obverse ending TR . P . XXV. and on reverse, VOTA SVSCEP . DECENN . III.—COS IIII. *Cohen*, II. 1117.

FAUSTINA SENIOR, WIFE OF ANTONINUS PIUS.

182—184. *Obv.* DIVA FAVSTINA. Bust of Faustina to right, draped.
Rev. AETERNITAS. Aeternitas standing towards left, her right hand raised, left holding sceptre. *Cohen*, II. 26.

185—186. Similar: Aeternitas holds globe; above her head a veil. *Cohen*, II. 32.

187. Similar: Aeternitas holds phœnix. *Cohen*, II. 11.

188. *Obv.* DIVA AVG . FAVSTINA. Bust as on No. 182.
Rev. AETERNITAS. Aeternitas standing towards right, holding sceptre. *Cohen*, II. 41.

189. *Obv.* Same as No. 182.
Rev. AVGVSTA. Ceres veiled, standing to left, holding ears of corn and torch. *Cohen*, II. 78.

190. Similar: but reverse type, Vesta standing to left, holding simpulum and palladium. *Cohen*, II. 108.

191. Similar: but reverse type, Female figure standing to left near altar, right hand raised, left holding cista. *Cohen*, II. 124.

192—194. Similar: but reverse type, Ceres standing to left, holding torch; over left arm her robe. *Cohen*, II. 114.

195. *Obv.* Same as No. 182.
Rev. CONSECRATIO. Peacock to right. *Cohen*, II. 175.

196. *Obv.* Same as No. 188.
Rev. PIETAS AVG. Pietas standing to left, near altar, both hands raised. *Cohen*, II. 251.

197. *Obv.* Same as No. 182.
Rev. VESTA. Vesta standing to left, holding palladium and sceptre. *Cohen*, II. 291.

MARCUS AURELIUS, A.D. 161—180.

198. *Obv.* IMP . M . AVREL . ANTONINVS . AVG. Head of Aurelius to right, bare.
Rev. CONCORD . AVG . TR . P . XV . COS . III. Concordia seated to left, holding patera and resting left arm on figure of Spes. *Cohen*, III. 30.

199. Similar: bust draped and wearing cuirass.
This is a variety not mentioned by Cohen.

200—202. *Obv.* IMP . M . ANTONINVS AVG. Head to right, bare.
Rev. Similar: but legend ending TR . P . XVII . COS . III. *Cohen*, III. 37.

203—206. *Obv.* AVRELIVS CAESAR AVG . PII F. Head to right, bare.
Rev. COS . II. Emperor standing to left, holding branch and cornucopiæ. *Cohen*, III. 110.

207. *Obv.* M . ANTONINVS AVG . TR . P . XXIII. Head to right, laureate.
Rev. COS . III. Diana standing to left, holding arrow and bow. *Cohen*, III. 130.

208. *Obv.* M . ANTONINVS AVG . TR . P. XXVI. Head to right, laureate.
Rev. IMP . VI . COS . III. Aequitas standing to left, holding scales and cornucopiæ. *Cohen*, III. 257.

209. *Obv.* M . ANTONINVS AVG . GERM . SARM. Head to right, laureate.
Rev. PAX . AVG . — TR . P . XXXI . IMP . VIII . COS . III . P . P. Pax standing to left, bearing arms with torch, and holding cornucopiæ in left hand. *Cohen*, III. 440.

210. *Obv.* IMP . M . AVREL . ANTONINVS AVG. Head to right, laureate.
Rev. PROV . DEOR . TR . P . XV . COS . III. Providentia standing to left, holding globe and cornucopiæ. *Cohen*, III. 508.

211. Similar: bust to right draped, head bare. *Cohen*, III. 511

212. *Obv.* Similar: head bare to right.
Rev. Similar: but legend ending TR . P . XVI . COS . III. *Cohen*, III. 519.

213. *Obv.* Same as No. 209.
Rev. SECVRIT . PVB . TR . P . XXX . IMP . VIII . COS . III. Securitas seated to left, her right hand raised above her head. *Cohen*, III. 588.

214. *Obv.* AVRELIVS CAES . ANTON . AVG . PII . F. Head to right, bare.
Rev. TR . POT . X . COS . II. Aequitas standing to left, holding scales and sceptre. *Cohen*, III. 701.

215. Similar: but type of reverse, Soldier standing to left, holding parazonium and spear. *Cohen*, III. 703.

216. Similar: but reverse legend TR . P . XI . COS . II. *Cohen*, III. 721.

217. *Obv.* M . ANTONINVS AVG . ARM . PARTH . MAX. Head to right, laureate.
Rev. TR . P . XXI . IMP . IIII . COS . III. Providentia standing to left, holding staff and sceptre; at her feet, globe. *Cohen*, III. 881.

218. *Obv.* Same.
Rev. TR . P . XXI . IMP . IIII . COS . III. Aequitas standing to left, holding scales and cornucopiæ. *Cohen*, III. 882.

219. *Obv.* M . ANTONINVS AVG . GERM . SARM. Head to right, laureate.
Rev. TR . P . XXIX . IMP . VIII . COS . III. Felicitas standing to left, holding caduceus and cornucopiæ. *Cohen*, III. 920.

220. *Obv.* Same.
Rev. TR . P . XXX . IMP . VIII . COS . III. Roma standing to left, holding Victory and spear. *Cohen*, III. 935.

FAUSTINA JUNIOR, WIFE OF MARCUS AURELIUS.

221. *Obv.* FAVSTINA AVGVSTA. Bust of Faustina to right, draped.
Rev. AVGVSTI PII FIL. Concordia standing to left, holding patera and cornucopiæ. *Cohen*, III. 21.

222. Similar: but type of reverse, Female figure standing, right hand raised and holding her dress with left. *Cohen*, III. 31.

223. *Obv.* Same.
Rev. DIANA LVCIF. Diana standing to left, holding torch with both hands. *Cohen*, III. 84.

224. *Obv.* Similar.
Rev. FECVND . AVGVSTAE. Fecunditas standing towards left, between two children; two others in her arms. *Cohen*, III. 95.

225. *Obv.* Same as No. 221.
Rev. HILARITAS. Hilaritas standing to left, holding palm and cornucopiæ. *Cohen*, III. 110.

226. *Obv.* Same as on No. 221.
Rev. LAETITIA. Laetitia standing to right, holding sceptre and wreath. *Cohen*, III. 147.

227—228. *Obv.* Similar: bust diademed.
Rev. SAECVLI FELICIT. Commodus and the young Antoninus seated on throne. *Cohen*, III. 191.

229. *Obv.* Same as No. 221.
Rev. SALVS. Salus standing to left, holding sceptre and feeding serpent which rises from altar. *Cohen*, III. 197.

230. *Obv.* FAVSTINAE AVG . PII AVG . FIL. Bust to right, draped, hair wavy and bound with pearls.
Rev. VENVS. Venus standing to left, holding apple and rudder. *Cohen*, III. 266.

Marcus Aurelius and Lucius Verus.

231. *Obv.* ANTONINVS ET VERVS AVG . REST. Three standards; between which LEG . VI.
Rev. ANTONIVS AVGVR. Galley to left; beneath IIIVIR . R . P . C.

Lucius Verus, A.D. 161—169.

232. *Obv.* DIVVS VERVS. Head of Verus to right, bare.
Rev. CONSECRATIO. Eagle. *Cohen*, III. 55.

233. *Obv.* L . VERVS AVG . ARMENIACVS. Head of Verus to right, laureate.
Rev. TR . P . V . IMP . II . COS . II. Mars walking to left, carrying Victory and trophy. *Cf. Cohen*, III. 265.

This coin is only published in gold. There is a specimen in silver in the National Collection.

234. *Obv.* L . VERVS AVG . ARM . PARTH . MAX. Head to right, laureate.
Rev. TR . P . VII . IMP . IIII . COS IIII. Aequitas standing to left, holding scales and cornucopiæ. *Cohen*, III. 297.

Lucilla, Wife of Lucius Verus.

235. *Obv.* LVCILLAE AVG . ANTONINI AVG . F. Bust of Lucilla to right, draped.
Rev. CONCORDIA. Concordia seated to left, holding patera; left arm on figure of Spes. *Cohen*, III. 6.

236—237. *Obv.* LVCILLA AVGVSTA. Bust to right, draped.
Rev. VENVS VICTRIX. Venus standing to left, holding Victory and shield. *Cohen*, III. 89.

Commodus, A.D. 180—192.

238. *Obv.* M . COMM . ANT . P . FEL . AVG . BRIT . P . P. Head of Commodus to right, laureate.
Rev. APOL . PAL . P . M . TR . P . XVI . COS . VI. Apollo standing towards right; plectrum in right hand, and with left placing lyre on altar. *Cohen*, III. 24.

239. *Obv.* M . COMM . ANT . P . FEL . AVG . BRIT. Head to right, laureate.
Rev. AVCT . PIET . P . M . TR . P . XII . IMP . VIII . COS . V . P . P. Pietas standing to left, sacrificing at altar; box in left hand. *Cohen*, III. 34.

240. *Obv.* Same as No. 238.
Rev. FIDEI . COM . [P . M . TR .] P . XVI . COS . VI. Fides standing to left, holding ears of corn and sceptre. *Cohen*, III. 127.

241. *Obv.* Same as No. 239.
Rev. HILAR . AVG . P . M . TR . P . XII . IMP . VIII . COS . V . P . P. Hilaritas standing to left, holding branch and palm. *Cohen,* III. 212.

242. *Obv.* Same as No. 239.
Rev. LIBERALITAS AVG . VII. Liberalitas standing to left, holding tessera and cornucopiæ. *Cohen,* III. 323.

243. *Obv.* L . AEL . AVREL . COMM . AVG . P . FEL. Head to right, laureate.
Rev. LIB . AVG . VIII . P . M . TR . P. XVII . COS . VII . P . P. Liberalitas standing to left, holding tessera and cornucopiæ. *Cohen,* III. 325.

244. *Obv.* Same as No. 238.
Rev. MIN . AVG . P . M . TR . P . XVI . COS . VI. Minerva running to right, looking back, holding branch in right hand and shield and spear in left. *Cohen,* III. 350.

245. *Obv.* Same as No. 239.
Rev. P . M . TR . P XIII . IMP . VIII . COS . V . P . P. Genius standing to left, holding patera and ears of corn. *Cohen,* III. 531.

246—247. *Obv.* M . COMMODVS ANTONINVS . AVG. Head to right, laureate.
Rev. TR . P . VII . IMP . IIII . COS . III . P . P. Providentia standing to left, holding staff and sceptre; at her feet globe. *Cohen,* III. 830.

248. *Obv.* L . AVREL . COMMODVS AVG. Head to right, laureate.
Rev. TR . P . XXXI . IMP . VIII . COS . III . P . P. Emperor seated to left, holding branch and sceptre. *Unpublished.*

249. *Obv.* Same as No. 239.
Rev. VIRTVT . AVG . P . M . TR . P . XII . IMP . VIII . COS . V . P . P. Virtus standing to left, holding Victory, spear, and shield. *Cohen,* III. 966.

250. *Obv.* Same as No. 239.
Rev. VOT . SOL . DEC . P . M . TR . P . XII . IMP . VIII . COS . V . P . P. Emperor standing to left, sacrificing at altar. *Cohen,* III. 1001.

CRISPINA, WIFE OF COMMODUS.

251. *Obv.* CRISPINA AVGVSTA. Bust of Crispina to right, draped.
Rev. HILARITAS. Hilaritas standing to left, holding palm and cornucopiæ. *Cohen,* III. 18.

CLODIUS ALBINUS A.D. 193—197.

252. *Obv.* D . CLOD . SEPT . ALBIN . CAES. Head of Albinus to right, bare.
Rev. MINER . PACIF . COS . II. Minerva standing to left, holding branch in right hand and sceptre and shield in left. *Cohen,* III. 48.

SEPTIMIUS SEVERUS, A.D. 193—211.

253. *Obv.* IMP . CAE . L . SEP . SEV . PERT . AVG. Head of Severus to right, laureate.
Rev. VIC . AVG . TR . P . COS. Victory to right, holding wreath and palm. *Cohen,* IV. 682.

APPENDIX II.

Note on hoards of Roman Silver Coins found in Britain, with special reference to the Silchester Hoard.

By F. HAVERFIELD, *Esq., M.A., F.S.A.*

Read March 28, 1895.

The coinage of the later Roman Republic was, in the main, a silver coinage of denarii issued either (1) at Rome by the officials of the mint, or (2) in the provinces by various generals, of whom for our present purpose the most noteworthy is Mark Antony. The older numismatic writers described the whole of this coinage as "consular," and the issues of the Roman mint as "family" coins, and the appellations, though inaccurate, have remained in use like "Samian ware," and other convenient phrases. The silver of the coinage is on the whole very pure, the alloy rarely exceeding three per cent., but the issues of Antony form an exception, containing fifteen per cent. of alloy. A considerable number of the denarii of this period, both Antony's and others, are plated, but this is a feature which is common to all periods of Roman coinage. So far as we can make out, a proportion of plated silver was regularly issued from the Roman mint, to ease the treasury and to serve somewhat the purpose of our modern paper-money.

Examples of this Republican coinage have been frequently found in Britain, as elsewhere in Europe, both in hoards and sporadically, and, as elsewhere, the finds fall into two distinct groups. The division between these groups coincides partly with the division between the issues of the Roman mint and those of Antony, but is determined actually by questions of date.

(A) The first group of finds comprises "contemporary deposits," coins lost or buried near to the time when they were issued. This means for Britain the coins imported previous to the Claudian conquest. It is well known that the Republican silver circulated outside the Roman dominions, and Tacitus, in a well-known passage, observes that it was gladly accepted in Germany a century after the Empire had been founded, the cause being the purity of the silver. It had currency also in Britain, where it supplemented the native silver coinage, and many examples have been found. As we should expect, these occur mostly in the southern counties, which were most open to Roman influences, and the are all, or nearly all, "family coins." As instances I may refer to the hoards of Ayott St. Lawrence in Hertfordshire, of Frome in Somersetshire, of Almondbury and of Lightcliffe, near Halifax, all of which were buried before or during the Claudian invasion. Here too I would place the "family" coins found at Boxmoor (Herts), where Briton and Roman successively inhabited the same spot. Here also I would, at least conjecturally, class the instances of family coins found sporadically in southern England at places which were not specially Roman sites, Newtown in the Isle of Wight, Waltham in

Hampshire, Prinstead in Sussex, Weston in Norfolk, Reigate in Surrey, and others. Here we are dealing with contemporary deposits, and we ought perhaps, historically, to classify these coins in Britain as pre-Roman. A somewhat different instance of a contemporary deposit was found in Swithin's Lane, London; it consisted of several hundred denarii, "family" coins, issues of Antony and of the Emperors till Claudius, and all plated. These coins belong to the "paper-money" class mentioned above, and may perhaps have been intended for the army of invasion in or soon after A.D. 43. This is the only instance known to me in which plated denarii have occurred in a hoard.

(B) The second group of finds differs from the first in two respects: (1) the deposits are not contemporary but survivals, the coins having been lost or buried two centuries after minting, and (2) they are usually legionary issues of Antony. They appear both in hoards and sporadically. The hoards are well illustrated by the Silchester example; they contain (1) a few republican coins, and (2) a fairly complete series from Nero or Vespasian till a point which varies between (roughly) A.D. 175 and 250. The sporadic finds occur on Roman sites, often in the north, at Ellenborough, *Aesica*, Chesters, York, Lancaster. Here we are plainly dealing with survivals; the explanation of their occurrence is in the main easy and certain.

The silver coinage of the early Empire, like that of the Republic, is generally good; debasement began with Nero, who reduced the weight and increased the alloy of the denarius. The debasement continued into the third century, and it has been calculated that, if a denarius of Augustus was worth ninepence, Nero's was worth eightpence, Hadrian's sixpence, and that of Severus under fourpence. As the debasement went on, the older and better coins were melted down, and Trajan actually "converted" a large part of the pre-Neronian issues, by calling them in and reissuing them with the alloy and weight of his own denarius. The Treasury, of course, gained the surplus silver. In the result pre-Neronian silver vanished, with two exceptions: (1) The heavily alloyed denarii of Antony were spared for a while, since they were not worth "converting"; it was not till Hadrian that the imperial denarius sunk below their level. (2) Many republican coins survived in Germany and elsewhere outside the Empire; the inhabitants of these lands preferred good coin, which they could easily distinguish from the debased imperial denarii of (say) Hadrian or Severus. Hence we can explain the characteristics of the hoards of denarii which were buried in the second half of the second century or the first half of the third century. These hoards are very numerous, both in Britain and on the continent, and those which, like the Silchester example, contain republican coins form only a variety in a large class. The feature of this class is the omission of early imperial silver and the commencement of a continuous series with Nero or Vespasian, and this feature harmonises exactly with the sketch of the silver currency which I have given. The coins of the Republic found a place in such hoards because they were either good silver: even if minted by Antony, they were now relatively valuable. They had a further value in that their types distinguished them absolutely from imperial issues, and we have a curious proof that this was recognised. A hoard was discovered in 1853 at the village of Tibod, in the Roman province of Dacia, which contained nearly 200 republican coins, many of them Antonian issues, and over 600 imperial denarii from Vespasian to A.D. 167. The coins were in two urns, and were so arranged that the republican were in one urn, the imperial in the other. It is a fair inference that the owner of these coins drew a marked distinction between the republican issues of all sorts and the post-Neronian issues of the Empire.[a] A similar feeling prevailed in other parts of the Empire, and we see that towards the end of the second century the legionary issues of Antony, which had escaped melting down through their badness, now found their way into hoards through their relative goodness.

It remains to say a word as to the date when the Silchester hoard was buried. The hoards of denarii found in Britain, which commence a continuous series with Nero or Vespasian, end either just before A.D. 170, or in the reign of Severus, or in the middle of the third century, when silver coining ceased. The larger number end just before or after A.D. 170, that is to say, they include M. Aurelius, Verus, and Lucilla; and it is possible that they were buried when troubles broke out in Britain about A.D. 184-6. At the same time, it must be remembered, as Mommsen has observed, that hoards of silver seem to include rather the oldest (that is, the best) than the newest coins in the burier's possession, and some of the hoards that end with Aurelius may conceivably have been buried in the struggle between Albinus and Severus (A.D. 194—197), which closely concerned Britain. The Silchester hoard ends with a coin dated A.D. 193, and as that coin is said to be nearly unused, the hoard may well have been buried during the struggle just mentioned.

I append three lists of (1) hoards of denarii found in Britain, which commence about Nero's reign but include issues of the Republic, (2) hoards of the same character which do not include republican issues, and (3) sporadic instances of republican denarii. All three lists have reference only to Britain, and even in that limited area are intended to be illustrative, not exhaustive.

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[a] Gooss, *Chronikder Archäologischen Funde Siebenbürgens* (Hermannstadt, 1876), p. 113; Mommsen and Blacas, *Histoire de la Monnaie Romaine*, iii. 51.

A.—HOARDS OF DENARII COMMENCING WITH NERO, BUT INCLUDING REPUBLICAN COINS.

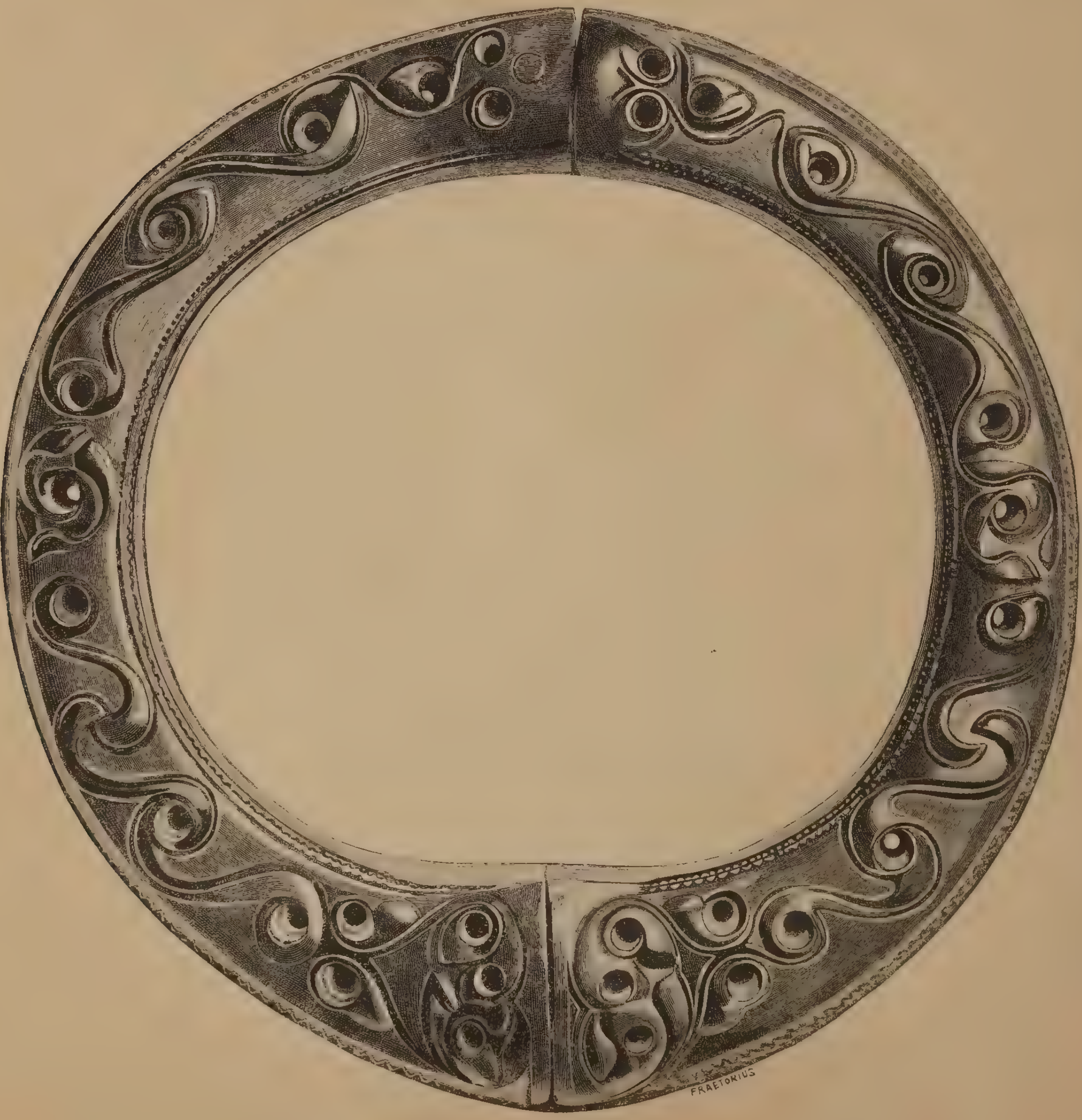
1. Beachamwell (Norfolk), in 1847, perhaps 50, certainly 37, pieces: A "consular medal of the Antonia family," and Vespasian to Commodus (*Norfolk Chronicle*, quoted in *Numismatic Chronicle*, x. (1843) 102; Mommsen, *Histoire de la Monnaie Romaine, traduite de l'allemand, par le Duc de Blacas*, iii. 54).
2. Castor, near Walton (Norfolk), in 1820, about 300 pieces, some of Antony and Vespasian to M. Aurelius. This hoard also contained bronze pieces (*Archaeologia*, xx. 578).
3. Linton (Cambridgeshire), in 1840, about 200 pieces: "Hadrian, Severus, Nerva Macrinus [? Trajanus], and a few legionary" (*Numismatic Chronicle*, xvi. (1854) 22).
4. March (Cambridgeshire), in 1730, a large hoard; 100 examined included a legionary coin of Antony and Vespasian to Pius. (Gale's Papers in Nichols's *Bibliotheca Topographica Britannica*, iii. 163.)
5. Leigh Down, near Bristol, in 1817, 500 or 1,000 pieces. A list of 240 is given by Seyer (*Memoirs Historical and Topographical of Bristol, &c.*, i. 164-7). The imperial coins range from Nero to Salonina; a fourth-century coin is mentioned also, perhaps by error. Ten republican coins are noted, one of the *gens* Appuleia (*Babelon*, i. 208), one of the Cordia (*Ib.*, i. 383, No. 1), four seem to be Antony's, and four are obliterated.
6. Wroxeter, 402 pieces, including one of *gens* Porcia and some of Severus (Wright, *Uriconium*, 332-408).
7. Cilhaul, near Trefeglwys (Montgomeryshire), about 1835, over 200 pieces secured by the tenant of the farm, who gave all but 10 gradually away; the 10 included Antony and Vespasian to Aurelius (*Montgomeryshire Collections*, iii. (1870) 417; xii. 23).
8. Near Harlech, in 1848, Republic (*gens* Naevia) and Empire?
9. Bentley Ings, near Doncaster, about 1865, legionary coins of Antony, some Augustus (?), and Nero to M. Aurelius (*Numismatic Chronicle*, v. (1865) 371; Mommsen-Blacas, iii. 53).
10. Lombard's Green (Derbyshire), about 1768, 80 pieces: Coins of "the Triumvirate" and Nero to M. Aurelius (Watkin, in *Journal of the Derbyshire Archaeological Society*, viii. 204).
11. Near Sheffield, in 1861, about 100 pieces: Coins of Antony and Nero to M. Aurelius (*Archaeological Journal*, xviii. (1861) 71.)
12. Near Cliviger (Lancs.), in 1695, "Consular"—*gens* Cassia and Valeria—and imperial (Watkin, *Roman Lancashire*, 232; compare *Archaeologia*, vii. 414).
13. Thorngrafton, Barcombe Hill, near Housesteads, in 1837, 3 gold and 60 silver pieces: The silver included 9 family coins (Aquillia, Coelia, Cordia, Furia (?), Livineia, Iulia (*Babelon*, ii., No. 10), Marcia, Plautia (*Ib.*, ii., No. 13), and Nero to Hadrian (Bruce, *The Roman Wall* (3rd ed), 419-423).

B.—HOARDS OF DENARII COMMENCING ABOUT NERO, NOT INCLUDING REPUBLICAN COINS.

London (Jewin Street) .	68. Galba to Faustina the Elder	*Journal of the British Archaeological Association*, ii. 172; *Numismatic Chronicle*, 1st Series, ix. 85.
Colchester	32. Hadrian to Severus Alexander	*Numismatic Chronicle*, 3rd Series, x. (1890) 262.
Benacre (Suffolk) . .	920. Nero to Aurelius . .	*Gentleman's Magazine*, 1786, i. 472; ii. 538, 581; Alfred Suckling, *History and Antiquities of Suffolk*, ii. 127.
Hinxworth (Herts.), Cashio	500. Nero to Aurelius . .	J. E. Cussans, *History of Hertfordshire*, iii. (2) 316.
Horseheath (Cambs.) .	Many. Nero to Verus . .	C. C. Babington, *Ancient Cambridgeshire*, 35.
Knapwell ,, .	,, Vespasian to Verus .	*Numismatic Chronicle*, 1st Series, i. (1841) 64.
Stoneham	,, Vespasian to Severus (? Verus)	*Ibid.*, vii. 193; *Gentleman's Magazine* (1844), 526.
Feltwell (Norfolk) . .	300. Early middle period .	*Journal of the British Archaeological Association*, xxxvi. 103.
Melton ,, . .	?. Titus to Aurelius . .	G. E. Fox, in *Archaeological Journal*. xlvi. 362.
Mansfield (Notts.) . .	300—400. Vespasian—Geta . .	*Journal of the British Archaeological Association*, v. 160.
Naseby	38. Vespasian to Aurelius .	*Archaeological Journal*, xxxii. 112.
Alfreton (Derbyshire) .	500 or 1,500. Vespasian to Severus, perhaps to Gordian	*Journal of the Derbyshire Archaeological Society*, viii. 196, 219.
Boverton (S. Wales) . .	40. Vespasian to Faustina	
Bryn Gwydiaw (N. Wales)	46. Vespasian to Pius (one Claudius).	
Eccleston (Chester) . .	43. Vespasian to A.D. 168 .	*Journal of the Chester Archaeological and Historic Society*, N.S., i. 91.
Standish (Lancs.) . .	200. Domitian to Gordian .	W. T. Watkin, *Roman Lancashire*, 239.
Fleetwood ,, . .	400. Vespasian to Caracalla .	*Ibid.*, 238.
Torbock ,, . .	33. Vespasian to Aurelius (or Gordian)	*Ibid.*, 237.
Kinross (N.B.) . . .	600. Nero to Severus . .	C. R. Smith, *Retrospections, Social and Archaeological*, ii. 180.

C.—SPORADIC FINDS OF REPUBLICAN COINS.

Richborough	Antony (plated) Plaetoria Consular (lead)	C. R. Smith, *The Antiquities of Richborough, Reculver, and Lymne*, 122.
Reculver	Antony	Hasted, *History of Kent*, iii. 634, *note*; Smith, 212.
Springhead	?	*Journal of the British Archaeological Association*, i. 155.
Upchurch	?	*Ibid.* xxi. 231.
Prinstead (Sussex)	Cornelia	*Archaeological Journal*, xiii. 96.
Newtown (Isle of Wight)	Rubria	*Journal of the British Archaeological Association*, vi. 439.
Waltham (Hants)	Scribonia	*Archaeological Journal*, vi. 193.
Reigate	Carisia	*Ibid.* xiii. 276.
London	Various	C. R. Smith, *Illustrations of Roman London*, 154.
Boxmoor	Family	*Archaeologia*, xxxiv. 397; xxxv. 66.
Northwold (Hants)	Lucretia	*Archaeological Journal*, xiii. 296 (in a Saxon ornament).
Weston (Norfolk)	Cassia Antonia Claudia	*Norfolk Archaeology*, iv. 357 (with British coins). Evans, *Ancient British Coins*, 361.
Stubbington (Hunts)	?	*Journal of the British Archaeological Association*, ii. 192.
Leicester	?	*Gentleman's Magazine*, 1797, i. 203.
Wroxeter	Porcia Antony	Thomas Wright, *Uriconium*, 407.
Chester	Antony	W. T. Watkin, *Roman Cheshire*, 227, 237.
Northwich	Sicinia	*Ibid.* 257.
Wilderspool	Antony and Acilia	*Ibid.* 271.
Lancaster	Antony Postumia	W. T. Watkin, *Roman Lancashire*, 189.
York	Antony	*Gentleman's Magazine*, 1767, 49; 1770, 155.
Maryport (Cumb.)	Antony	J. C. Bruce, *Roman Wall*, 3rd ed. 370. Another specimen found lately.
Greatchesters (*Aesica*)	Antony	Found July, 1894.
Chesters (Cilurnum)	Cassia	*Archaeological Journal*, xix. (1862) 363.
South Shields	Family, Antony	*Archaeologia Aeliana*, x. (1885) 275.



LATE-CELTIC BRONZE COLLAR FOUND AT WRAXALL, SOMERSET (full size).

APPENDIX.

1. *On a Late-Celtic Bronze Collar from Wraxall, Somerset.*

December 13th, 1894.—W. R. Barker, Esq., through A. E. Hudd, Esq., F.S.A., exhibited a Late-Celtic collar of bronze, found at Wraxall, Somerset, on which Sir A. Wollaston Franks, President, read the following notes :

"I have long known the collar found at Wraxall, through the medium of a plaster cast, not a very good one, which is in the British Museum. Another cast, now in the Society's collection, was exhibited in 1842 by the Reverend H. T. Ellacombe, and is noticed in the Appendix to *Archaeologia*,[a] where it is stated that Mr. Coathupe, who made the cast, analysed the metal of the original, with the following result : 'Copper predominates in it, the other metal being either lead, antimony, or zinc.' Properly speaking, therefore, the material is not bronze, but brass, there being no tin.

It has been described as a torques, or torc, which seems scarcely correct, as it is not formed of a twist, like true torcs. It belongs to the period which I have termed Late Celtic, and I have included it in the list of personal ornaments of that period in Kemble's *Horæ Ferales*,[b] where I have noticed twenty-two collars, English and foreign.

Of all the English specimens in bronze, the one from Wraxall (Plate XLVIII.) is the most ornamental. It has been suggested that the cavities in its upper surface were once filled with precious stones. This is, however, improbable, as far as true precious stones are concerned, as the Celts do not seem to have been acquainted with them. There, may, however, have been pieces of red coral, or glass imitating it, amber, or even possibly British pearls.

Like most of these collars, the mode of fastening seems to have been peculiar, and it is to be regretted that it has been so injudiciously tampered with. The following are the other English examples with which I am acquainted in this metal:

1. A bronze collar found in 1831 at Mowroad, in the parish of Rochdale, and in the collection of the late Mr. Dearden. It was exhibited to the Society in 1832.[c] A lithograph of it was prepared by Mr. Dearden, and a small engraving appeared in the *Gentleman's Magazine* for 1843. The collar consists of two portions, one comparatively flat, the other formed of eleven wreathed beads. The two parts were united by iron tenons.

2. A collar, of somewhat the same design as the last, but more slender, was found on the edge of the moor behind Embsay, near Skipton, West Riding, Yorkshire. It was exhibited to the Society in November, 1845, and is engraved in *Archaeologia*.[d] One portion consists of a

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[a] Vol. xxx. p. 521.

[b] Page 181.

[c] *Archaeologia*, xxv. 595.

[d] Vol. xxxi. Pl. xviii. p. 517.

quadrangular bar, the other has twelve bead-like projections, and the two parts were united by tenons, which were kept in their place by the elasticity of the material.

3. A collar, not unlike No. 1, found in Lochar Moss, Dumfriesshire, and now in the British Museum. It was exhibited to the Society April 10th, 1851, and engraved in *Archaeologia*,[a] with a paper by Mr. Albert Way. Here the collar has been in two portions, a flat band with a raised edge, on which is a Late-Celtic design, and fourteen ribbed beads, with intervening sockets, now all loose. In each of these is a square hole, through which may have passed a quadrangular iron bar, now decayed, which probably terminated in a tang to fasten the collar.

4. Fragment of a bronze collar found at Penderwell, in the parish of Claines, near Worcester, and formerly in the collection of Mr. Allies, who has published it in his *Folklore of Worcestershire*. It was exhibited to the Society 14th December, 1843, and engraved in *Archaeologia*.[b] It consists of the ornamental portion of the collar with twenty beads like vertebræ strung on to an iron wire or bar. This seems to confirm my suggestion as to an iron bar in the last specimen.

5. A collar of somewhat different type to those described was found in 1747 at Stitchel, co. Roxburgh, Scotland, and is preserved in the Museum of Scottish Antiquities at Edinburgh. It is engraved as a head-ring in Wilson's *Prehistoric Annals* (1863),[c] and in the Catalogue of the Museum formed by the Archaeological Institute at Edinburgh in 1856.[d] It is perhaps of somewhat later date. The front portion is at right angles to the back, and both parts are ornamented with a scroll pattern.

6. A collar, again somewhat different, was discovered in the Isle of Portland, it is said in a sarcophagus with Roman pottery. It was presented to the British Museum by Mr. Luff in 1889, and of this I exhibit a drawing.

It will be seen that this collar is unusually flat, the principal prominences being the two knots in front. It has scrolls in relief and holes into which coral or glass pastes may have been fixed. It fastens by means of a hinge behind and a kind of catch in front, like the collar from Stitchel.

7. The specimen most like the collar from Wraxall consists of three fragments found in 1802 in a stream-work called Trenoweth in Cornwall, exhibited to the Society in 1807, and engraved in *Archaeologia*.[e] It is a good deal ornamented with engraved and punched work uniformly disposed round the circle.

I doubt if the collar or torques found at Polden Hill should be included, though of the same period. It is a plain iron collar round which is twisted bronze wire. It is engraved in *Archaeologia*.[f]

It is singular that no collar of this kind seems to have been found in Ireland.

In France collars of this period are not unfrequent, especially in the eastern districts, as well as in Switzerland. I have given an account of some of them in Kemble's *Horæ Ferales* as above stated, but they do not resemble very closely the British specimens."

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[a] Vol. XXXIV. Pl. xi. p. 86.
[b] Vol. XXX. p. 554.
[c] Vol. ii. p. 146.
[d] Page 25.
[e] Vol. XVI. Pl. x. p. 127.
[f] Vol. XIV. Pl. xix. fig. 6.

2. *On a Late-Celtic Dagger Sheath found in Oxfordshire.*

January 24th, 1895.—Percy Manning, Esq , exhibited a Late-Celtic Dagger Sheath of bronze found in a backwater of the Thames close to North Hinksey, near Oxford, on which C. H. Read, Esq., Secretary, made the following communication:

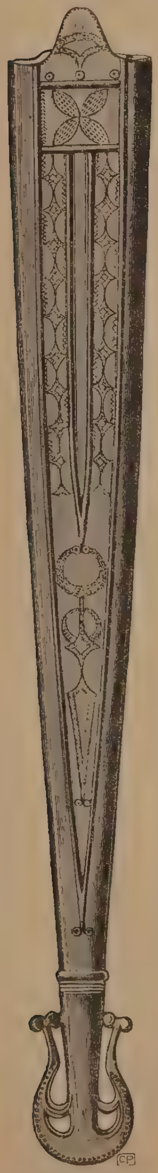

Fig. 1.
Late-Celtic Dagger Sheath found in Oxfordshire.
(Front view.)

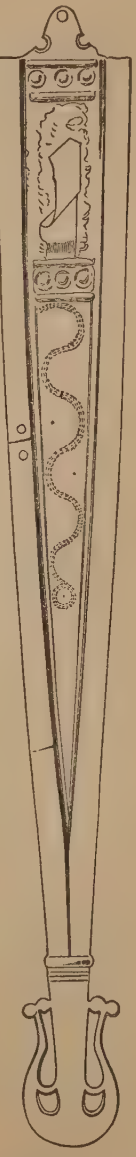

Fig. 2.
Late-Celtic Dagger Sheath found in Oxfordshire.
(Back view.)

"The dagger sheath exhibited by Mr. Manning is a characteristic example of Late-Celtic art, though some of the details are of an unusual design. In its present state it is 12·8 inches in length, and is formed of two plates of bronze, with the addition of a chape and a loop near the mouth for suspension. One plate forms the front of the sheath; this is bent at the edges so as to lap over the other plate forming the back, and to this it is neatly braized. The sheath still contains the iron blade of the dagger, which has rusted in place. The front of the sheath (Fig. 1) is ornamented with two pairs of ribs following the outline of the edge, and the spaces within are filled with minute punched ornament of a formal character, very different from the flowing curves usually associated with the art of the Celts. This design is well seen in the engraving and need not be described in detail. The plate forming the back (Fig. 2) is also ornamented, but in a less elaborate style. A wavy line formed by punching three rows of small crescents occupies about one-third of the total length of the sheath, and it is interesting to note that this has been first set out on the metal by striking a number of semicircles with compasses; the centre points are plainly to be seen. The upper part of the back plate is furnished with a plain flat loop or slide, through which no doubt a strap for suspension was passed, and above and below this is an embossed band with three circles containing bosses. The mouth of the sheath is of the elegant curved form usually found in Late-Celtic sheaths both abroad and in England.

The chape is, however, the most interesting feature of this specimen. The form, as the figures show, is by no means a highly ornate one, and by itself it possesses but slight importance. In the British Museum, however, are three similar sheaths[a] of the same general character, but differing in details

[a] One of these is figured in Kemble's *Horæ Ferales*, plate XVII. fig. 3, and in the *Archaeological Journal*, x. 259. It will be clearly seen that the same elements are to be found in the chapes of both sheaths.

both from each other and from that now before us. A comparison of the chapes at once shows the importance of a series of such antiquities, for in the present case it becomes immediately clear that in these four specimens we have a signal example of the evolution of form, and, as it seems to me, that there is an intimate connection between the ordinary chape of the now well-known Late-Celtic sword (such as may be seen in *Archaeologia*, vol. lii. p. 35) and the equally familiar pelta-shaped chape of the Roman soldier's sword. In this way the object before us is a document of some value, and it is to be hoped that it may find a resting place where it will be of the greatest use."

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